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Original Articles

THE TREATMENT OF BURNS AND SKIN GRAFTING.

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There is perhaps no more frightful accident than a severe burn of large area. The intense suffering of the patient, and, in case of recovery, the hideous deformity left, render these accidents peculiarly distressing. In spite of all our pastes and powders, salves and solutions, the mortaltiy in burns involving more than one-third of the body surface is nearly 100 per cent., and in many cases the agony of redressing these wounds is so great as to lead physician and patient alike to pray for a merciful termination by death. Dupuytren's classification of burns into six degrees was cumbersome, and modern writers have adopted Boyer's and speak only of three degrees. In the following description, hyperemia of the skin will be considered a burn of the first degree, destruction of the epidermis shown by vesication, second degree, destruction of the derma, third degree, and of the deeper tissues, fourth degree.

CASE 1.—In August, 1902, M. O., aged 21, a railroad fireman, came to St. Joseph's Hospital in St. Paul, severely scalded by steam over practically the whole trunk, with the exception of a small part of the lower abdomen (Figs. 1 and 2).

Treatment and Result.—Seventeen days after the accident, under the most approved modern methods of treatment with carbolized vaselin, zinc oxid salve, pieric acid wet dressings, various dusting powders, together with supporting treatment of strychnia, iron, etc., and normal salt solution as drink and by enema, the patient was reduced to a moaning, babbling skeleton with swollen ankle and knee joints, coated, cracked tongue and lips, septic temperature, exhausting sweats, rapid, feeble pulse, with albuminuria and large amounts of colored matters in the urine. Morphin was administered as frequently as we dared, but it only benumbed the faculties without relieving the consciousness of the ever-present pain. The shrieks of the patient when we removed the dressings, after thoroughly soaking them with normal saline or boracic acid solution, added to the horror of the situation.

Observation of a considerable number of burns had shown me that the burns of the face when left exposed to the air speedily crusted over and healed rapidly underneath Nature's own dressing, while burns of no greater depth or area on the trunk or limbs treated simultaneously with occlusive dressings, dragged along interminably.

The moisture from the perspiration and the exudation from the wound being retained, every dressing speedily became a wet poultice, and it was a logical step to assume that the toxemia resulting in emaciation, fever, and nephritis was due mainly to absorption from the wounds. Death being apparently a matter of a short time to the patient, we removed the occlusive dressings and *exposed his wounds to the air.* In order to aid Nature to form scabs over the freely exuding surfaces various dusting powders were applied; the stearate of zinc finally being chosen as least liable to cake or to irritate. The patient sat up in an invalid chair propped up and tied for ten days and nights, a nurse carefully drying up the exuding spots with gauze sponges and then dusting on stearate of zinc; when a collection of seropus formed under a crust, the parchment-like scab was removed, the surface carefully cleansed with sponges dipped in normal saline solution and powder reapplied until we had thin, dry, brown scabs firmly adherent to the granulating surfaces. In October the patient was well, with flexible scars freely movable and only thick under the right axilla, where the burns extended down into the subcutaneous tissues. This patient was in my office in March, 1905, and in most excellent condition; none of the scars had ulcerated, as is so frequently the case when keloid masses result.

CASE 2.—In December, 1902, F. W., aged 29, while scraping hogs, fell into a vat of scalding water at Swift's plant; he quickly scrambled up on the side of the vat, but his fellow workmen were so horrified as to be unable to assist him, so that he fell in again; this time, however, he was pulled out and brought to St. Joseph's Hospital, where I saw him.

Treatment.—He was given a bath in normal saline solution, put into a room which we kept heated to 90 F. and higher, and given strychnia and enemata of normal saline for the shock. While in the ambulance he had been given a hypodermic of morphin for a burning sensation, which began about forty minutes after the scald; in the night he received a quarter-grain dose for his restlessness more than for pain. The pain became severe on the evening of the second day after symptoms of shock had passed away, and a quarter grain of morphin was administered; this dose was repeated on the evenings of the succeeding six days, although severe pain only continued about twelve hours (Figs. 3 and 4).

In order to stimulate the areas of skin only scalded to the first degree and less, to increase of function, alcohol rubs were frequently administered. The blisters were carefully opened and contents expressed as rapidly as formed, but ultimately nearly all lost the epidermis. Stearate of zinc was assiduously dusted on exuding surfaces until adherent dry crusts were formed and the patient sat up in bed most of the time so that as little of the burned surfaces should come in contact with the clothes as possible.

Result.—The urine was heavily charged with coloring matters for a time, but albuminuria did not occur. On the fifth day he developed a cough and labored respiration, which we interpreted as an infarct of the lung; these symptoms soon passed away. The patient left the hospital Jan. 15, 1903, the burned areas healed with smooth, flexible scars, which have since given no trouble of any kind.

CASE 3.—On January 23, M. B. L., a middle aged merchant, was severely scalded by steam on both hands and on face, and sustained scalp and facial wounds in a railway wreck. In attempting to grope his way out of the car in which he was imprisoned he shoved nearly all the skin of his wrists and hands forward to the tips of his fingers where it lay folded and wrinkled up much like a pair of gloves about to be donned. He arrived at St. Joseph's Hospital late in the evening.

Treatment.—The oily dressings on the hands were removed and a wet picric acid dressing with oiled silk covering substituted, and ¼ grain of morphin administered. The patient slept fairly well during the night, and the next morning the hands were immersed in a bowl of picric acid solution before removal of the dressings; the removal of the wet gauze from the raw surfaces caused such exquisite pain that the patient said that he could not endure a repetition of the process without chloroform. The hands were washed in normal saline solution, carefully dried and exposed to the air, stearate of zinc dusted on, and the arms supported in such a way that the raw surfaces were kept from touching anything. Morphin was given that evening but was not required thereafter. All blisters that formed on face and hands were carefully clipped off and the surface powdered.

Result.—In four days the patient was up and about and in three weeks he left the hospital with the burned surfaces all crusted over and healing far advanced. He was encouraged to move hands and fingers freely and in this way stiffness of the joints was avoided. Six weeks after the injury, the hands were healed with the same smooth flexible scars secured in Case 2.

Case 4.—On the morning of July 26, 1903, Mr. E. H. aged 24, fireman, was frightfully scalded in a railroad wreck. Practically the whole body was scalded to some extent; the entire back was scalded to the second degree, as was most of the posterior surface of the right lower limb; a space the size of a hand on the left hip, and one half that size on the thigh, were burns of the third degree; an area equal to the palm of the hand over the middle of the left leg exposed the bone, and the dorsum of the foot, especially at the bases of the toes, was charred to the hard tissues below (Fig. 5.)

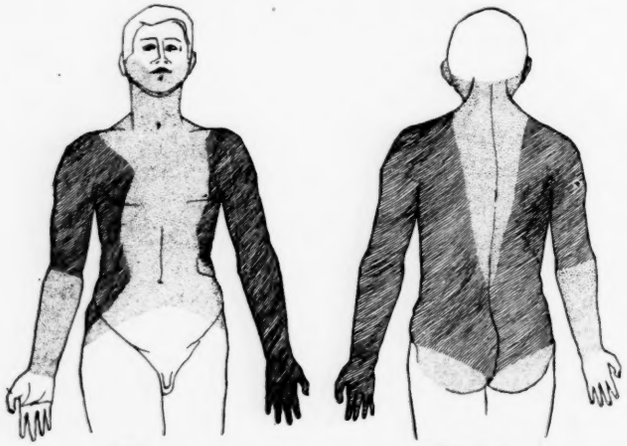

Figure 1. Figure 2.

Figures 1 and 2.—The light stippling indicates a burn of the first degree, and the lines a burn of the second degree; there is, besides, a large area around the right axilla of the third degree.

Treatment.—Immediately following the accident there was considerable shock. Strychnia and morphia were administered hypodermically, and as soon as the patient reached St. Joseph's Hospital large quantities of normal saline solution were given. Considerable pain was experienced beginning about three hours after the accident continuing up to midnight. Morphin was required for the pain the next day, but none was required thereafter although there was some suffering from the inflammatory reaction for a time. The anterior surface of the body being comparatively free from burns the patient slept on his abdomen all of the time, the left leg suspended by slings from cradles which kept the bed clothes from touching the body at any point burned; warm water bottles to the feet and inside the tent thus formed, together with a small heater in the room kept the temperature up.

Result.—The patient had no albuminuria, and after the first few days no pain, and was discharged from the hospital recovered seven weeks from the date of admission. Soft, smooth flexible scars except a small hard scar at base of left middle toe.

Case 5.—A. K., a middle aged man employed at Swift's packing plant was scalded by hot steam to the second degree over dorsum of right arm and back.

Treatment.—The patient came to my office and was given a supply of stearate of zinc and directed to go home, to expose the right arm and half of his body to the air and to sit by the kitchen stove. Dr. F. J. Savage visited him once and clipped away all the blistered epidermis and found the patient carrying out instructions.

Result.—In three weeks the patient returned to work with the burned area dry and crusted over and the greater part healed. The final recovery was delayed one week longer, but the result was apparently perfect.

Dr. Savage has since treated two minor cases of first and second degree burns according to this method neither of which required analgesics and both recovered within two weeks.

The first three of my cases demonstrated the value of this method of treatment to Dr. Ancker, Superintendent of the St. Paul City and County Hospital, and he introduced the treatment there.

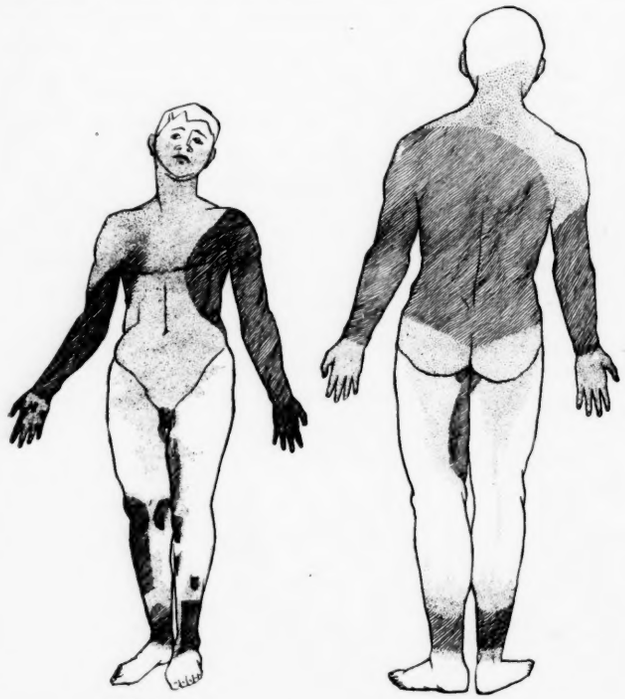

Figure 3. Figure 4.

Figures 3 and 4.—Showing the extent and degree of the scald. The light stippling indicates burns of the first degree, and the lines those of the second degree.

The first three patients submitted to this treatment at the City and County Hospital were all burned by a gasoline explosion. One was an old man 81 years of age, bedridden, and suffering with pyelocystitis from vesical calculus, who was burned over head, face, chest and arms. The soft parts of the right hand and wrist were charred and the only treatment would have been amputation had his general condition permitted. In spite of his feebleness he lived a month with all the burns healed except the right forearm and hand. His son, burned over legs, forearms and face, recovered promptly and left the hospital in three weeks. The housekeeper, Miss H., 33 years old, was burned over the whole body, mainly to the second and third degrees and lived six days, having never recovered from the shock. She was conscious most of the time and did not suffer pain.

Case 6.—J. K., aged 28, was burned over the whole pos-

terior part of the body from her dress catching fire (Fig. 6). Considerable areas of the entire thickness of the skin were destroyed around both axillæ, on the buttocks, and on the feet.

Treatment.—The patient slept on her abdomen for three months and, indeed, much of the time since then. The granulating areas were kept clean; sponge and tub baths of normal saline solution being used at intervals to cleanse the whole body and to soak off some of the scabs; stearate of zinc and powdered aseptic vegetable charcoal were used to assist Nature in forming dry closely adherent crusts. No skin grafting was practiced, because we could not secure the skin, but the sores all finally healed, and even the deep scars over the charred spots were freely movable, flexible, and smooth. Slight albuminuria and chromaturia appeared at times when the little lakes of seropus were not cleaned out promptly. Some trouble was experienced in keeping the temperature of the room high enough during the first month. As soon as possible the patient was made to walk about daily. During the healing process some pain was complained of, but morphin was only required a few times the first three days.

In August, 1903, a still more frightful burn was admitted.

CASE 7.—Mrs. E., aged 39, sustained a charring of the right hand and forearm and a burn of the second degree of the arms and face and a burn of the third degree involving the whole anterior surface of the body, from the neck to the knees, from her dress catching on fire (Fig. 7). Shock prevented the initial suffering, and after it passed off she only had severe pain one day requiring morphin, and later the pain due to the swelling around the burned areas from the inflammatory reaction, so that analgesics or narcotics were only sparingly used. The patient suffered considerably from nervousness and weakness during her stay at the hospital, but, all in all, hardly suffered any pain during the entire period.

Treatment and Result.—Exposure of the patient to high temperature in a room, with local heat to the head and feet, combined with the free use of normal saline solution as a cool drink and in enema removed the initial shock in three days. All blisters were cut away as formed and zinc stearate was dusted on the exuding surfaces. The areas where the whole derma was destroyed were simply exposed to the air and the discharges removed with gauze sponges and full baths in normal saline solution. Burns to the fourth degree were treated to peroxid solution at intervals. The baths were greatly enjoyed by the patient and seemed to refresh her greatly; after the bath the granulating surfaces were carefully dried with gauze. The exuding serum formed a collodion-like membrane over the granulations and epidermization proceeded briskly. The granulations were small, firm, red, and healthy-looking. At the end of three months all the burns were healed except an area over the abdomen about ten inches square and small spots on both breasts. The right forearm and hand were mummified and Nature began to indicate where she would amputate just below the elbow. For two months we had made ineffectual efforts to secure skin for grafting. The patient was emaciated and weak and died from exhaustion and nephritis four and one-half months after admission.

Remarks.—We feel confident that this patient could have been saved had skin grafting been practiced, as her general condition was fair and the urine free from albumin and casts up to within three weeks of her death, with the exception of the first month, when albuminuria was noted ten times.

Two other adults died from burns during this period. A watchman was burned to the third and fourth degrees all over head and face, destroying the eyes, and to the second degree on both arms and hands, in a gasoline explosion. He became delirious on the third day and remained in stupor until he died, presumably of meningitis, twelve days after the accident. The last patient was a man who fell into the vat at Swift's plant in which the patient in Case 2 was scalded. This man was literally cooked and died of shock within six hours. Of the fourteen deaths, nine were of children; all of whom were extensively burned. Five died of shock within the first twenty-four hours, leaving four that died in spite of the method of treatment. The baby shown in Fig. 8 developed a gastroenteritis on the nineteenth day, while everything seemed to be progressing as well as possible, and died of exhaustion and toxemia within three days. The facility with

Figure 5.—This photograph was taken on the twenty-fourth day after the accident. Most of the burns are healed.

which this four-year-old child adopted and maintained the position shown in the illustration was remarkable. This accident occurred in the heated term and we believe that the diarrhea was a foreign invasion unconnected with the burn. Considerable pain was mani-

fested from the second to the sixth days, but the toxemia from absorption after the first week was very slight judging from pulse, temperature and urine.

On the fourth of July a boy was burned over one-half of the body and head from a powder explosion, mostly to the second degree. The eyes were destroyed, the face greatly swollen, and toxemia was constant until his death on the nineteenth day; the pulse ranged from 100 to an uncountable rate, the temperature attained 107.6 in the axilla and the stools and urine were frequently involuntarily voided. Catheterization revealed granular casts and albumin in the scanty urine. Delirium and stupor supervened near the last. This patient undoubtedly died of meningitis from direct extension through the orbit.

The two remaining children who died succumbed on the fifth and ninth days respectively, one from the combined effects of shock and toxemia, the other from symptoms of pneumonia.

CASE 8.—Mrs. A. was burned by gasoline explosion over one-third of body, involving the greater part of upper half anteriorly and on right side. The burns of the second degree healed in four weeks, while the granulating areas of the third degree were crusted over.

Treatment and Result.—This patient required morphin the first three days, but after that suffered very little beyond discomfort. The initial shock was treated by high temperature of the room, local heat to head and feet, and normal saline solution in baths, enemata, and as a drink. The after treatment was the same as in preceding cases. The patient refused skin grafting and left the hospital in good condition before the granulating surfaces were entirely healed.

CASE 9.—B. S., aged 18, suffered from gasoline burns involving right upper quarter of body. The whole right hand and arm swelled up to double the normal size on the second day after the accident (Fig. 9).

Treatment and Result.—Under the same treatment as in the preceding case all the burned surfaces had healed at the end of two months, with the exception of a large surface on the anterior aspect of the right shoulder extending toward the chin and neck. A peninsula of new skin extended down through the center of the area almost dividing it into two parts. Unsuccessful efforts were made to secure permission to graft skin but the patient's friends were dissatisfied with the progress of the case and she was taken home where a course of occlusive dressing treatment with all sorts of salves was practiced from August 22, 1904 until the last of March, 1905, then she came into the hands of Dr. Brimhall, who promptly sent her to St. Joseph's Hospital where, with the assistance of Dr. O'Brien, Thiersch grafts were applied, with the most happy results. A strange feature of the case is that apparently little or no progress in healing had been made during the seven months that she was at home. During this period she suffered considerable pain.

SUMMARY OF CASES TREATED IN HOSPITAL.

Sixty-three patients were treated at the City and County Hospital from Jan. 1, 1903, to Jan. 1, 1905, according to the open air method, with fourteen deaths, nine of which occurred in children. Two patients died in the ambulance or immediately on arrival. Not all of these sixty-three patients were extensively burned, but twenty-five burns involved one-fourth and more of the body surface and the rest were severe enough for hospital care. The fact that pain only lasted a short time, that nothing further than keeping the wounds clean was required, that stiffness in nearby joints from disease did not develop, and that the time required for healing was shortened about two-thirds as compared with our usual method, make the results noteworthy. Up to this time out of more than 85 cases the only deaths are those mentioned.

DEATHS.—CITY AND COUNTY HOSPITAL.

Shock—Seven within twenty-four hours; two within six days. Meningitis—One on twelfth day; one on nineteenth day. Pneumonia— One on ninth day. Gastroenteritis—One on twenty-first day. Exhaustion—One after four and a half months. Total—14.

Drs. H. J. O'Brien and J. B. Brimhall have treated five cases of extensive burns by this open method, with the same freedom from pain and with the same favorable outcome. A number of other patients treated by various other physicians could be cited but these will suffice. Over seventy-five patients had been treated up to Jan. 1, 1905.

SKIN GRAFTING.

In extensive granulating areas where skin grafting was required we were confronted by the problem of an occlusive dressing, something we were anxious to avoid; we therefore determined to try the open air method in this procedure also and the first grafting made on an injured foot was entirely successful. Thiersch grafts were placed on the denuded surface, which had been prepared in the usual way and then simply exposed to the air. Small blisters of tissue-paper thickness filled with a seropurulent exudate appeared on some of the grafts; these were opened and the contents carefully expressed with gauze sponges. Drs. O'Brien and Brimhall then grafted a boy with an extensive burn according to the method of Reverdin with excellent results. In this case the small grafts were simply planted on the granulations.

The next case was a granulating area in the popliteal space of the left leg about 6x9 inches where the skin had been torn off by machinery. In this case, the tops of the granulations were shaved off with a sharp knife and the raised borders scraped with a sharp spoon. Not a blister raised on these Thiersch grafts and the patient was discharged in two weeks, during which time he slept on his abdomen.

The next case did not turn out so well; a wound on the right heel was grafted first with puppy skin and later with human skin from patient. Both grafts were partially unsuccessful owing to an infection, which existed on the leg, of *Bacillus pyocyaneus*. Dr. Wagner of Breslau calls attention to the fact that this particular infection is fatal to success in skin grafting.

In St. Paul, Drs. Harry O'Brien, Brimhall, Cook, Shimonek, Quinn and others, have used this method of skin grafting with success. Owing to the fact that Dr. F. Brüning,[1] assistant surgeon in the Lutheran Hospital at Freiburg, has published a short article detailing the excellent results attained by exposing grafted areas to the air, thereby antedating this communication, it is unnecessary to describe further our cases, although the exposure of freshly grafted skin to the air was probably practiced first in St. Paul. In the future, with so successful and easy a method of treating grafted wounds, the immense areas especially resulting from burns should be grafted with the skin of the lower animals. There is so much fat in the skin of dogs that this does not so readily lend itself to grafting, but the skin under chicken wings, and that of guinea-pigs and of rabbits ought to furnish material in plenty. Snipping off small bits of skin (Reverdin) and placing them on the granulating areas will assist us in cases in which Thiersch grafts cannot be obtained, and I think that this method will become popular again. The best preparation for a skin graft, in my opinion, is the open air treatment of the wound, as the granula-

1. Zentralb. f. Chir., July 30, 1904.

tions become small, firm and hearty looking, and the borders from whence epidermization proceed, take on new life and activity. When Thiersch grafts have been applied to the surface they will adhere firmly after from six to eight hours. The serum that oozes out between and around them should be carefully wiped up with gauze sponges, and the contents of small vesicles that may arise should be expressed. Cleanliness must be observed and if necessary a wire cage may be strapped over the parts during the night.

GENERAL CONSIDERATIONS.

In burns involving large areas of skin the patient is exposed to death first, from shock; second, from toxemia due to absorption of poisons from the injured surfaces; third, from loss of function of the absent skin covering; and fourth, from exhaustion due to the long continued fight for recovery.

SHOCK.

So much has been written on this subject and so much awaits us that the last word can not yet be said, but it seems as though we ought to be able even now to form a fairly definite opinion of the pathologic conditions that confront us in shock, and to base a rational therapy thereon. If we take into consideration the physiologic experiments of hydrotherapy, in conjunction with the numerous experiments on shock and especially those of Sonnenburg, Crile, and Kinnaman, the following propositions may be assumed: Mental and physical irritants, either singly or conjointly, may produce a vasomotor paresis which results in lowering of blood pressure and in the accumulation of the blood in the splanchnic veins, i. e., "the patient is bled into his own belly." A fall in body temperature occurs which is due to an interference with the heat center in the spinal cord or to loss of function of the nerves in the cold anemic skin which convey temperature impressions to the center, whereby heat production and radiation are controlled. The lack of blood in circulation does not leave fluid enough for the heart to work on, and, mechanically in great part, produces the weakness marked by a small, rapid, thready pulse.

The brain torpor, faintness, the condensation of the perspiration on the skin (cold sweat), the intense pallor, the coldness of the extremities, the weakness of the heart and the compressibility of the pulse, are the signs which indicate anemia in these regions. In fatal cases of shock, there is often a peculiar motor restlessness in which the patient threshes about, throwing his limbs from side to side, uttering Oh! Oh! my! Oh dear! etc. at frequent intervals, and seems unable to fix his attention for more than a moment; these signs are almost pathognomonic of impending death. The fall in body temperature seems to me to be the most dangerous condition in shock, and this is borne out by Kinnaman's studies; this experimenter was able even to produce shock by simply lowering the temperature. In some cases of drowning, Dr. Bailey of Lake City, Minn., was able to resuscitate patients apparently dead by using hot wet blankets and hot baths. The "gilded boy," and animals varnished over the skin died of lowering of the body temperature.

The first indication in treatment would be to use some agent to combat the fundamental disturbance, which is the vasomotor paresis; the only drug that can at present be recommended for this purpose is adrenalin cautiously administered, and I would warn against the use of whisky, morphin, strychnia, digitalis, atropin, etc., because, while they act as heart and circulatory stimulants when the body is in normal condition, in shock they are only poisons to the susceptible nervous system already struggling under a load threatening to overwhelm it. Far better for our purpose is the symptomatic treatment of the resultant conditions. To assist nature to drive the blood out from the abdomen, give drinks and enemata of cold normal saline solution which add volume to the circulating medium; chafe the hands and feet and apply local warmth to the extremities, and especially to the nape of the neck. To counteract the fall in body temperature, use the hot bath and maintain a high temperature in the room. Finally, in order to add more fluid to supply the heart with something to work on use saline transfusion or hypodermoclysis.

Toxemia.—Occlusive dressings have been used from time immemorial in the treatment of burns, because, probably, the exclusion of the burned surface from the air relieved the pain; an added reason seemed to follow the discovery of the bacterial origin of suppuration and the presence of large numbers of germs in the air, but surgery now has discarded the use of Lister's spray, and few surgeons fear that colonies of germs will alight on the surface of a wound and infect the field of operation. It is rather hands, instruments, sutures, and the skin from which needles carry cocci deeper, to which scrupulous attention is paid. Ever since Krönlein and Volkmann's strife in the 70's was decided in favor of occlusive dressings as against the open method of treatment, we have been haunted by visions of the swarming enemies in the air ready to swoop down on us, and one of the first questions that occurs to the practitioner who sees a wound treated open to the air is, "how about infection?" In the first hours of a burn, the areas are effectually sterilized by the heat and when the eschars separate, nature has granulations which protect against invasion, and drainage can easily be kept almost perfect. In burns of the second degree, the crusts formed by Nature, perhaps assisted by some dusting powder, renders the field impregnable to germs which require heat and moisture for their development.

The sudden deaths that occur in the early period of a burn have been the subject of considerable study; Schultze and Wertheim, and Ponfick and v. Lesser explained them by alteration and destruction of red blood corpuscles, but the examination of the blood in cases of burns by Hoppe-Seyler showed that this theory is untenable. Silberman and others thought that capillary thrombi formed of altered red corpuscles lodged in the vital organs producing areas of anemia followed by inflammation. Sonnenburg ascribes death to sudden overheating of the blood with subsequent cardiac palsy, or to vasomotor paresis and apparently demonstrated the last experimentally. Anjello and Parascandola experimented with burned tissue injections into healthy animals and conclude that toxic ptomaines are absorbed which cause poisoning and death. Bardeen[2] found cloudy swelling and degeneration of the glandular organs, especially, in an examination of five small children dying from burns, and concludes also that death is due to a toxemia, indistinguishable from that which occurs in acute infections, but, curiously enough, he considers this the result of the high temperature. Von Dieterrichs[3] says that the changes in the blood after burns are fully explained by the formation of hemolysins and

2. Johns Hopkins Bull., Apr. 1, 1897.
3. Wein. med Woch., Nov. 21, 1903.

hemoagglutinins, and the formation of other cellular poisons. It must be apparent that any ptomaines formed from destroyed skin and other tissues are kept in contact with the raw surfaces held suspended in a warm solution, under the most favorable conditions possible for absorption, because the oily occlusive dressings prevent the profuse perspiration from carrying them off by evaporation. That ptomaines or other poisons are absorbed under these conditions is shown clearly by the history of Case 1 and that of all the burns I have treated before that, as well as by many others of the seventy-five in this series: Whenever a crust formed over a granulating cavity which did not allow of the escape of the secretion, we could look for a rise in temperature, or even for albumin and casts in the urine. On the other hand, when the surfaces were kept clean and drainage was perfect, there was absence of these signs of intoxication. In Case 1, the promptness of absorption can be shown by an acute poisoning which resulted from the application of a picric acid wet dressing; in twenty minutes the patient was delirious, the temperature and pulse both shot upward and the urine had turned to a yellowish-green solution which almost solidified on boiling. Diffuse hemorrhages in the internal organs are almost characteristic of death from anthrax, or some equally violent toxic disease such as farcy, malignant smallpox or indeed any disease characterized by the rapid and free formation of toxins. Unfortunately, we were not allowed a single postmortem on the patients that died, but the absence of tarry stools, collapse, and bloody diarrhea in these cases would point to the non-occurrence of duodenal ulceration.

To avoid toxemia then, we must not interfere with free perspiration; the secreting surfaces must be kept clean, and, to avoid infection, we must render the surface dry and impregnable to germs and aid Nature in forming the adherent crusts under which healing goes on so rapidly, as pointed out years ago by John Hunter. Of other emunctories, the kidneys and bowels can perhaps be best assisted by free flushing, and what is better than large quantities of normal saline solution?

Loss Of The Function of The Absent Skin Coverings.—The far-reaching importance of the skin and its contained organs is not fully appreciated I feel sure. Aside from its function as an organ of protection and excretion, the nerve endings within it furnish the information by which both the circulation and the body temperature are properly maintained. Two pounds of sweat, is the daily average excretion besides the CO_2 and possibly other noxious gases. The importance of maintaining whatever amount of skin on the body has escaped burning in the highest state of functionating becomes manifest, and this is one of the reasons why the continuous full bath of Hebra is not the best treatment of burns; the skin works best in its natural medium, which is air. Another reason why the continuous bath is not best is that perspiration is interfered with. Cold spongings and frictions are perhaps the best stimulants to skin function and should be frequently practiced in treating burns. To supply artificial heat to the body, is another important indication and a temperature as near the body heat as possible should be maintained constantly during the first weeks of a severe burn.

Exhaustion.—Long-continued suppurative processes or even serous discharges from granulating surfaces, lead to general emaciation, weakness, and perhaps amyloid or other changes in the vital organs. The best preventive is to graft as soon as possible the surfaces which have been burned to the third degree. Nourishing diet, as much exercise as possible, and supporting measures suggest themselves.

Figure 6.—Showing extent of burn in Case 6.

Open Treatment of Wounds.—For several years H. Wagner[4] has treated chronic ulcers and granulating wounds by the open method with the happiest results. He says that occlusive dressings keep the edges of the wound macerated, swollen and unhealthy so that often little or no progress toward healing is made. "In spite of antiseptic salves the secretions in the moist chamber form the most favorable nidus possible for bacterial development." "The danger of infection is practically *nil* with the open method of treatment, but naturally patients should not be exposed to erysipelas, etc. He has treated wounds on an individual with salves and the open method at the same time for comparison, and finds the open method vastly superior. Wagner leaves the wounds open by day and covers them over with some powder at night.

Oscar Barnard[5] exposes unhealthy wounds to the sun's

4. Zentralbl. f. Chir., Dec. 12, 1903.
5. Muench. med. Wochft., Jan. 5, 1904.

Figure 7.—Showing extent of burn in Case 7.

his modification of the open method, which consists in putting dressings and bandages over a wire cage, and sponging the wound three or more times daily with some mild antiseptic solution. "Frequently waterproof is put over the cage to keep the discharges from drying or caking." The results were to him extremely gratifying, and he notes the absence of pain during treatment, and of keloid masses and thick cicatrices which continually break down afterward. This cage method is about the same thing as Meyer's moist chamber for skin grafts.

SUMMARY.

When first seen, burns and more particularly scalds are apt to prove deceptive as regards their degree, and it is wise to withhold prognosis in the beginning. Whenever occlusive dressings are kept on, even for forty-eight hours, I am confident that these will frequently convert a first into a second and a second into a third degree burn through confinement of the perspiration and maceration of impaired tissue. One of the remarkable things in this experience with burns is the small amount

Figure 8.—Showing position voluntarily adopted by child, and extent of burns.

rays and to the air, aiming to secure some chemical effect from the first, and a drying out of the granulations by the latter. Although he claims to have practiced this method since 1902 and claims priority over Wagner of Breslau, it seems clear from his writings that he exposed granulating wounds to the sun and air more as a method of treating the granulations than as a method of securing epidermization, and then only at certain hours in the day. Brüning at Freiberg was induced to try the open method of treating wounds by Wagner, and this led him one step further, namely, to leave his skin grafts exposed to the air, as mentioned above.

That "there is nothing new under the sun" receives confirmation again in this treatment of burns: Dr. W. P. Copeland[6] of Eufala, Ala., describes two cases of minor burns, which had been treated for some time in the usual way, in which he removed the dressings and exposed the wounds to the air; pasteboard boxes were placed over them to keep anything from touching the wounds.

Twelve years later, Dr. G. Archdall Reid[7] described

Figure 9.—Gasoline burns involving right upper quarter of body. Photograph taken six weeks after accident, showing burns of second degree healed.

6. Med. Record, May, 1887.
7. London Lancet, March, 1898.

of pain suffered by the patients and its short duration when the wounds are left exposed to the air. Severe pain, when not obscured by shock, only lasts from six to twelve hours, and I think is better controlled by hypodermics of morphin than by any other measure. I would urge that as little morphin be given as possible; it should not be given when shock is present.

Another astonishing feature is the character of the cicatrices after healing. In burns of the second degree, the skin is reproduced so well that only a white color marks the scar. Third degree burns result in smooth, flexible, skin-like scars. Two factors probably account for this: First, the tops of granulations which grow into the meshes of the dressings are not torn off, day by day forming scar ridges throughout the substance of the scar which firmly anchor the skin covering and probably interfere with its nutrition; and second, Nature seems better able to control the growth of the firm, small, healthy granulations which result from exposure to the air—a marked contrast to the large flabby efflorescent masses seemingly growing without direction in the moist chamber of an occlusive dressing. The length of time for skin to cover a wound, judging from Wagner's and my own observations, is shortened about two-thirds as compared with the time required under occlusive dressings. Wagner estimates that a normal granulating surface the size of a saucer can be healed over in from eight to ten days.

First, treat the shock as indicated above.

Second, control the pain as necessary and keep everything from contact with the burned areas.

Third, keep the patient surgically clean. Ordinary surgical principles govern here as elsewhere; bichlorid of mercury, carbolic acid and other strong antiseptics are to be avoided when possible because they are such powerful cell poisons that toxic effects both general and local are to be feared; the delicate covering of granulations will not stand escharotic action without interfering with the production of smooth, flexible scars.

Fourth, give frequent cold sponge baths to the sound skin with frictions, and keep room temperature high.

Fifth, cut away all blisters, cleanse with normal salt solution, dry thoroughly, and dust all second degree burns with stearate of zinc, carefully wiping away serous exudate until dry, brown, adherent crusts are formed.

Sixth, leave third degree burns exposed without powder and keep surface clean until granulations are ready for skin grafting.

Seventh, to maintain and to preserve function, body and limbs should be exercised as much as possible; the eschars of burns to fourth degree should be removed when Nature so indicates and amputation should be performed when needed.

My thanks are due the St. Paul surgeons mentioned in this paper and to Interne Dr. C. L. Larson of the City Hospital for a transcript of the records.

RADIUM TREATMENT OF CANCER OF THE ESOPHAGUS.*

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Cancer of the esophagus is one of the most intractable diseases with which we have to deal. Not even modern surgery has succeeded in combating this disease. Gastrostomy may for a time prolong life; it is, however, connected with certain dangers and annoyances and does not attack the real focus of the disease. It is, therefore, natural for the physician to search for new means of treatment in this malady.

When Roentgen gave his *x*-rays to the world, I experimented with them in cancer of the esophagus and stomach. In my cases (six in all), this method of treatment was of no avail, because the tumor lies deeply hidden and is covered by other parts of the body (skin, muscles, thorax). The rays, therefore, do not penetrate sufficiently to the tumor in any considerable strength.

After Curie had discovered the wonderful radium and had found the effect of its rays to be analogous to that of the Roentgen rays, I tried to apply radium locally by means of small receptacles in affections of the esophagus, stomach and rectum.[1]

On Jan. 22, 1904, I demonstrated this method of treatment on one of my patients suffering from carcinoma of the esophagus at a meeting of German physicians at New York. Exner,[2] independently of myself, followed out the same idea and on Jan. 28, 1904, published an article entitled "The Treatment of Esophageal Cancer by Means of Radium."

Somewhat later I[3] reported the results of local treatment with radium in 9 cases of cancer of the esophagus; in 6 a marked widening of the stricture was found.

Fig. 1.—The esophageal receptacle with tubing and mandrin.

Here I would like to report on 72 new cases of cancer of the esophagus in which local applications of radium were made.

METHOD.

The radium receptacle for the esophagus consists of a rubber tube (about 17 F. diameter) which is provided with a mandrin and a capsule, the lower part of which is made of hard rubber and the upper part of metal. The two halves are screwed together. The upper part of the capsule is provided with a screw thread by means of which it is attached to the tube portion (Fig. 1).

The capsules are made in three different sizes to fit strictures of various widths.

MODE OF APPLICATION.

The radium vial is placed in the capsule of the instrument and the latter screwed tightly together. The apparatus with the mandrin, having been first immersed in warm water, is introduced into the esophagus, with the patient in the sitting position (best in the fasting condition), and is pushed forward to the stricture. In introducing it, it is best to depress the tongue with the left

*Read before the East Side Medical Association, New York, 1905.

1. Max Einhorn: "Radium Receptacles for Esophagus, Stomach and Rectum." Medical Record, 1904, p. 399.
2. Wiener klin. Wochen., No. 4, 1904.
3. Max Einhorn: "Observations on Radium." Medical Record, July 30, 1904.

index finger and to hold the instrument like a pen in the right hand, compressing it somewhat so that the mandrin remains in place. When the stricture has been reached, as evidenced by the resistance, the mandrin is removed and the end of the rubber tubing fastened by means of a thread to the ear of the patient. The instrument is allowed to remain in the esophagus from one-half to an hour, according to the needs of the case, and is then removed.

When employing the larger capsule it is necessary when withdrawing the instrument to make the patient swallow when the cricoid cartilage is reached in order to avoid the resistance encountered at this spot.

After having removed the instrument, wash it, unscrew the capsule, open it, and remove the radium vial. The instrument may be easily disinfected.

The same instrument may be used in gastric carcinoma. It must then naturally be introduced into the stomach.

RESULTS OBTAINED IN THE NEW CASES.

I have lately treated seven patients suffering from cancer of the esophagus with local applications of radium. In all the diagnosis was established beyond doubt. They were all individuals who had been suffering from three to six months from dysphagia, becoming gradually worse and on examination with the bougie showed a stricture of the esophagus. In one of the patients (Mrs. M.), the tumor was seen with the esophagoscope. In the other six, the esophagus was not inspected.

Patient.—One of the seven cases (A. S.) was a private patient of mine about 75 years old.

Examination.—Nov. 10, 1904. Swallowing sound absent; bougie (35 F.) encountered resistance 15 inches from the teeth.

Treatment and Result.—He was treated for about two and one half months (from Nov. 10, 1904, to Jan. 20, 1905) with 0.05 gram of the pure radium bromid for about half an hour every second day. Exact measurements of the stricture were not made afterward. Before beginning treatment the patient could hardly swallow fluids. During treatment his condition improved, he could take fluids without difficulty and even semi-solid food was well borne. Even after stopping the applications of radium, the ability to take fluid and semi-solid food remained, and the patient was entirely free from pain until the present time. In consideration of the age of the patient no exact measurements of the stricture were made, so that we are unable to say whether the stricture widened. Nevertheless, the result is satisfactory.

The other six patients were treated at the German Hospital, New York. In each 0.25 gram of Curie's radium of 20,000 activity was applied to the stricture for one hour daily. Once a week, exact measurements were taken to determine the distance of the stricture from the teeth, as well as the circumference of the stenosis by means of bougies of different size. The radium applications were made by means of the esophagus receptacle. The instrument was pushed forward to the stricture and allowed to remain there. I would like to emphasize the fact that no force whatever was used either in the introduction of the instrument or in the measurement by means of the bougie. We can therefore exclude any mechanical dilatation of the stenosis.

Neither in the 7 cases just reported nor in the previous 19 have I ever met with any disagreeable accidents that might be ascribed to the radium treatment.

In the following table I have tabulated the 6 cases treated in the German Hospital:

TABLE OF CASES OF CARCINOMA OF THE ESOPHAGUS TREATED BY MEANS OF RADIUM AT THE GERMAN HOSPITAL.

Name.	Age.	Length of Treatment.	Result of Examination by Bougie.		Remarks.
			At Beginning of Treatment.	At End of Treatment.	
1. A. S.	52	Feb. 22-Mar. 9, 1905 (16 days).	Bougie 32 F. encounters resistance 15¾ in. from the teeth.	Bougie 39 F. encounters resistance 16½ in. from teeth.	Patient feels somewhat better.
2. A. G.	55	Mar. 9-Ap. 6, 1905 (29 days).	Bougie 20 F. encounters resistance at 17½ in; bougie 39 F. at 16½ in. from teeth.	Bougie 42 F. encounters resistance at 17½ in. from teeth.	Patient has improved considerably. He can swallow better and has no pain.
3. A. K.	38	Mar. 22-Ap. 20, 1905 (30 days).	Bougie 20 F. encounters resistance at 17 in. from teeth, but passes thro'; bougie 39 F. can be inserted only to 16½ inches.	Bougie 43 F. passes into stomach without resistance.	Patient has gained and can now take semi-solid and even solid substances.
4. C. M.	39	April 6-28, 1905 (23 days).	Bougie 20 F. encounters resistance at 14¾ inches; bougie 39 F. at 16½ inches from teeth.	Bougie 52 F. passes into stomach without resistance.	Patient feels better; she can take semi-solid and some solid food.
L. Z.	50	Ap. 13-28, 1905 (16 days).	Bougie 26 F. encounters resistance at 15 in.; bougie 39 F. at 14 in. from teeth.	Bougie 52 F. passes into stomach without resistance.	Patient can now take solid food; has gained 8 pounds.
6. B. B.	53	Ap. 10-28, 1905 (19 days).	Bougie 25 F. encounters resistance at 11 in. from teeth.	Bougie 35 F. encounters resistance at 12½ in. from teeth.	Ability to swallow has not particularly improved. Has brought up at times a little bloody mucus, especially after the radium treatment; slight rises in temperature occasionally.

In looking over this table we find that in all 6 cases the stricture has improved under treatment. In 3 (Cases 1, 2, 6), the stricture did not become passable; the bougie, however, could be introduced deeper. In the other 3 (Cases 3, 4, 5), the stricture became passable for rather thick bougies (43-52 F.).

The improvement could usually be observed after a week's treatment, at times even earlier.

All these patients felt better than they did before treatment; 5 could swallow better; 3, in whom the stricture had become entirely permeable, were able to take semisolid and even solid food. The pain was less in five of the six patients.

The results obtained are very satisfactory, since we have to deal with an affection which has not been amenable to treatment until now. In the methodical application of radium we have the means to influence favorably the course and seat of the disease and to retard its progress, even if at present we can not entirely remove it. This mode of treatment is certainly destined to play an important rôle in the therapeutics of cancer of the esophagus and deserves to be tried on a large scale and in a thorough manner. Should my results be confirmed by other clinicians, radium therapy should take a high rank in the treatment of cancer of the esophagus.

The time is not far distant, writes E. L., in the *Alkaloidal Clinic*, when our great and grand profession will stand shoulder to shoulder, not only for the advancement of medical science, but for the protection of each other against unjust demands by the public and against unjust and selfish criticism by the members of our own profession.

WANDERING OR ABERRANT UTERINE FIBROMYOMATA.

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This paper will be limited to a consideration of that rare form of tumor known as wandering, aberrant or sequestrated fibromyoma of the uterus.

An attempt to review the literature on the subject has proved distinctly disappointing, as, although the files in the Surgeon-General's Library at Washington and the Newberry Library in Chicago have been thoroughly searched, but few cases have been found, and these are reported in an incomplete and unsatisfactory manner.

The tumor under discussion presents all the gross and microscopic appearances of a true uterine fibromyoma and yet it is found to have absolutely no connection with the uterus or its appendages. A tumor originating in the uterus as a subserous fibromyoma, has been transplanted to another site, frequently to tissue widely different from that from which it sprung, and from which it derives its support and nutrition. In a few reported instances the tumor has been found lying free in the peritoneal cavity having formed no adhesions or new vascular connections. The action of the uterus in thus transferring to some neighboring and passively receptive organ this unwelcome and troublesome guest with the demand that the tumor not only be allowed to remain in the new location but that nutrition and all future care must be furnished by the new parent reminds one forcibly of the habits of the cuckoo which deposits its egg in the nest of an obliging neighbor, calmly leaving the hatching and rearing of the offspring to the unsuspecting friend.

These tumors are usually found in women whose uteri contain one or more fibromyomata in addition to the one which has been transplanted; but there may be only a single tumor and after separation from the uterus that organ will present no evidence of myomatous degeneration.

As is well known, subserous fibromyomata as they develop and follow the line of least resistance, which leads toward the abdominal or pelvic cavity, frequently become pedunculated, and it is a matter of common observation to find these pedicles long and more or less attenuated. This condition having been acquired, what, then, is the next stage in the evolution of the growth? In those cases in which the tumor has been found loose in the abdominal cavity and has established no new attachment or source of vascular supply, it has been very small in size, as in the case reported in a personal communication by Dr. J. M. Baldy of Philadelphia, where at the operation for the removal of a myomatous uterus he found a small detached fibroid the size of an English walnut lying entirely free in the cavity. These small, loose tumors having no blood supply could not survive for any length of time, and I am inclined to believe that they may have become loosened during the examinations to which these patients have been subjected, as many of them are examined more than once and often days or weeks before coming to operation. That such separation could occur spontaneously may not be denied but that such a mass detached from all vascular connections could long survive is incredible. I incline to the opinion that the train of events leading up to the loosening of these tumors from the uterus and their attachment in a new location (and most of them are so attached) is as follows:

With the elongation and attenuation of the pedicle, the fibroid mass acquires a steadily increasing range of motion which permits it to come more or less readily in contact with neighboring viscera. This contact, which at times may be quite forcible when the tumor is large, may induce a sufficient degree of peritoneal irritation to cause lymph exudation and a low grade localized peritoneal inflammation with the perfectly logical sequence of adhesion occurring between the peritoneal surfaces of the tumor and the organ with which it is in contact.

This adhesion eventually becomes quite firm and organized and it is not long until the growth is obtaining a new blood supply from the tissues of its foster parent. The adhesion having thus become firm and resisting, if much traction on the mass results it will be made manifest at the point of weakest attachment, which is now the long thin pedicle. This, being no longer equal to the strain periodically put on it, by changes in posture or by the mobility of the part or parts to which the tumor is attached, ruptures, and the detachment of the myoma is complete.

A tumor connected to the uterus by a long slender pedicle may be released by spontaneous rupture of the latter and its range of motion and power to excite peritoneal irritation, having been thus increased, it sets to work the agencies just described and rapidly finds a new place of abode and a new source of nutrition.

Turner[1] in an article on this subject has advanced a somewhat similar opinion. Roger Williams[2] states that these tumors are particularly prone to inflammation which may go on to gangrene and also that calcareous degeneration commonly occurs in them.

These growths may be found attached at any point within the pelvis. Williams states that they may be found grafted to the great omentum, Douglas' pouch, the pelvic margin, the intestines, etc. The diagnosis of these tumors, of necessity, will usually be made at operation, for an accurate conclusion as to the real pathology could scarcely be reached by examination.

The treatment may be briefly stated to consist in their removal unless the patient presents some definite contraindication to operation. Their attachment to important organs, with whose function they may interfere, and their tendency to inflammation render them more formidable than an ordinary uterine fibromyoma.

The earliest recorded case which I have been able to find was reported by West[3] in 1858. He describes a case in which he found a fibroid the size of a walnut in Douglas' cul-de-sac and supported by a "false membrane between the uterus and rectum."

Sir James Simpson[4] in 1871 reported having seen "several instances" but gave no details.

Porter[5] in 1875 exhibited at the thirty-seventh annual meeting of the Dublin Obstetrical Society a specimen of a fibrous tumor which he had found lying free in the abdominal cavity of a woman aged 50. Cases have also been reported by Eve,[2] Depaul,[2] Wylie,[2] Rindfleisch,[2] Homans,[2] Wallace,[2] Routh,[2] and Nélaton.[2]

In Routh's case, a calcified myoma the size of a turkey's egg, detached from the uterus and grafted on the small intestine, was successfully removed.

1. Turner: Edin. Med. Jour., Feb. 1861, p. 698.
2. Williams: Uterine Tumors, p. 75.
3. West: Lectures on the Diseases of Women, p. 210.
4. Simpson: Selected Obstetric and Gynecologic Works, p. 716.
5. Porter: Dublin Jour. of Med. Science, vol. III, p. 247.

In Wallace's case, a calcified tumor was removed from the tissues of the brim of the pelvis.

Senn[6] reports a case in which, at a laparotomy for multiple myomata, he found in the abdominal cavity a detached tumor as large as a small pear. The apex of the tumor tapered to a small point marking the place where the pedicle became detached.

J. Whitridge Williams, Baltimore (personal communication), reports two cases in which subperitoneal myomata had formed vascular connections with the omentum and were completely detached from the uterus. Both were undergoing calcareous degeneration and were successfully removed.

Charles P. Noble, Philadelphia, who has had a very large experience with fibromyomata, reports (personal communication) that he has never seen an example of a detached myoma.

F. H. Martin, Chicago, reports (personal communication) two patients operated on by him in whom subserous fibromyomata had broken away from their uterine attachment and had established nutritive attachments to the omentum and intestine.

J. M. Baldy, Philadelphia, reports (personal communication) two cases in which he discovered at operation a small detached tumor the size of an English walnut lying perfectly loose among the intestines and states that he could not understand how they derived their blood supply. My own experience with tumors of this class is limited to two cases, a brief description of which follows:

CASE 1.—Mrs. E., aged 46, was referred to me by Drs. Bushby and Brown of Primghar, Iowa.

History.—The patient had borne five children and had enjoyed unusual health. There was nothing of importance in the previous history until about one year previously when she began to suffer with vague abdominal pains and noticed a gradually increasing tendency to constipation. These symptoms persisting, she consulted her physicians who sent her to me with a diagnosis of tumor of the left ovary. After careful bimanual examination I too came to the conclusion that the growth was of ovarian origin but could not satisfy myself as to its classification. In view of the distress occasioned by the tumor its removal was advised.

Operation.—July 19, 1904, at St. Joseph's Hospital. On opening the abdomen with the patient in the Trendelenburg position I was surprised to find the uterus with both ovaries and tubes perfectly normal. Nesting against the left side of the pelvis was a globular tumor the size of a large orange and very hard and firm. It was intimately attached to the parietal peritoneum and to the mesocolon. The adhesions binding the tumor to these structures were organized and very vascular and were cut between ligatures. Much time and patience was required to effect the removal of the tumor but it was finally accomplished and the raw surface covered with peritoneum.

Remarks.—It was only after the tumor was completely removed and in my hand that I recognized its true character. It presented all the characteristics of a large subserous myoma of the uterus and at one point tapered slightly, indicating the spot to which the pedicle formerly connecting it with the uterus had been attached. The uterus was again carefully examined with the hope of finding some slight scar to mark the former attachment of the pedicle, but none could be detected. The abdomen was closed and the patient's recovery was uneventful. The pathologist reported the tumor as a fibromyoma doubtless of uterine origin.

CASE 2.—Mrs. L., aged 57, was referred to me by Dr. George White of Plankinton, S. D.

History.—The patient was the mother of one child; she had never become pregnant again and suffered with dysmenorrhea and some menstrual irregularity, the intervals between menses being frequently a week or ten days too long. Menopause occurred at 47, since which time she has been very well. January, 1904, she noticed some beginning enlargement of the abdomen. July, 1904, she "flowed" for six days; no further discharge was noticed. The abdominal condition remained stationary occasioning no symptoms and marked by no noticeable increase in size until December, 1904, when she discovered that the growth was rapidly becoming larger. At this time, she consulted Dr. White, who referred her to me for hysterectomy. With the history of the case as a guide, a diagnosis of uterine fibromyoma probably undergoing malignant degeneration was made, and immediate operation was advised and accepted.

Operation.—Jan. 4, 1905 at St. Joseph's Hospital. The abdomen was opened, and the uterus, which contained many tumors varying in size from a walnut to a base ball, was completely removed, it being considered unsafe, owing to the possibility of malignancy, to leave the cervix. Attention was now directed to a large tumor the size of a fetal head attached to the right lateral wall of the pelvis, adherent to the parietal peritoneum and to the mesentery of the ileum and cecum. This tumor presented the characteristics of a large pedunculated uterine fibromyoma but had absolutely no attachment to the uterus or to any of its appendages, all of which had been removed without in any way disturbing the blood supply or loosening the adhesions holding the tumor firmly in position.

As in the former case, the adhesions were very vascular and the enucleation of the tumor was accomplished with considerable difficulty. At one portion of the tumor was found what was assumed to be the remains of the pedicle which had formerly formed its attachment to the uterus. The raw surfaces left after the removal of the growth were covered by peritoneum and the abdomen closed. Patient's convalescence was normal.

The pathologist (Dr. Henry Albert) reported that the tumors within the uterus as well as the detached growth were fibrosarcomata and gave it as his opinion that the detached tumor had originated in the uterus.

In neither of these two cases at the time of operation was the tumor attached to the uterus, the tubes, the ovaries or the round ligaments, nor imbedded in the broad ligament, in all of which organs myomata are frequently found.

I have taken the liberty of reporting the second case under the title fibromyoma, as although at the time of its removal it was diagnosed by the pathologist as a fibrosarcoma, I consider it quite probable that at an earlier period in its development it would have been found to present the characteristics of a fibromyoma. It is neither possible nor proper at this time to take up the question of the transformation of benign tumors of the uterus into malignant growths. That such a transformation does occur, however, I firmly believe from my experience in several cases and for that reason I include Case 2 in this report.

I wish to acknowledge the assistance which I have received in the preparation of this article from Dr. Palmer Findley of Chicago, and the excellent work on tumors of the uterus by Roger Williams, as well as those gentlemen whose names are mentioned in the text as having, in personal commmunications, acquainted me with their experience in similar cases.

6. Senn: Pathology and Treatment of Tumors, p. 498.

Importance of Catharsis.—The intestinal tract can hold an immense quantity of fecal matter. Do not, therefore, argue that you have an empty bowel because the patient says he has had free stools. Sweep out the *primæ viæ* and then keep up normal peristaltic activity and you will discharge two cases while your rival is treating one.—*Alkaloidal Clinic.*

THE TREATMENT OF TETANUS BY INTRANEURAL AND INTRASPINAL INJECTIONS OF ANTITOXIN.*

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Some recent laboratory studies in the toxicology of tetanus seem to offer a little more hopeful therapy than has hitherto prevailed. To make the subject clear, it is necessary to review, briefly, what is known of the micro-organism, its poison and the natural antidote. The bacillus is anaërobic, and exposure to sunlight and air are inimical to it, but it can exist, at least in the spore state, for great lengths of time in every conceivable place contiguous to man and the domestic animals. The superficial layers of cultivated earth seem to be its favorite habitat, possibly because it is said to be a normal inhabitant of the intestine of the horse and has often been found in the feces of man and other animals; nevertheless, it is not generally considered normally a parasite. With such a distribution, the ingestion of the bacillus with raw vegetables and its inhalation in dust are readily conceivable and it is hardly necessary to note that the micro-organism has been demonstrated in the human bronchial secretions. As the bacillus only needs a lesion of the skin or mucous membrane in order to gain access to the body, an explanation of the etiology of many obscure cases of the disease is obvious. In addition to the requirement of a breach in the continuity of protecting epithelium necessary for the entrance of the germ into its host, several other factors must be combined, and hence the comparative rarity of this disease.

Inoculation of a susceptible animal with a pure culture of either the bacilli or their spores, provided these are not in excessive or massive dosage—in other words, inoculation with such a dosage as would be encountered under natural conditions—results in a positive chemotaxis, and the germs are taken up and apparently, as a general rule, destroyed by the leucocytes; anything which hinders this process of phagocytosis conduces to the growth and development of the parasites and the disease.

In the course of such an inoculation experiment, the bacilli or their spores are found to become less and less numerous at the point of infection until, at the end of twenty-four hours, they cease to be demonstrable by the microscope, except within the leucocytes and by cultures. They are thus carried to the neighboring lymph nodes and to distant organs, where apparently they perish or rarely retain their vitality indefinitely; under favoring conditions in their host, such as a lowered vitality or a severe trauma, they may develop and produce symptoms or death. A guinea-pig, which ordinarily perishes within a few days or hours after inoculation, has been known to survive without symptoms for over four months after an experimental infection, and then without apparent cause develop the disease and die quickly. In man there are from time to time reported cases in which there seems to have been a very long incubation period, followed by an acute and violent development of symptoms. This, of course, is contrary to the general rule, which is that a mild course follows a prolonged incubation period. For this somewhat unusual state of affairs there are several explanations which can be reduced to almost the single phenomenon of phagocytosis. At least anything which interferes with this process, like the introduction with the bacilli of foreign bodies or the devitilization of the surrounding tissues or the simultaneous inoculation with saprophytes or pyogenic cocci, and this symbiosis is particularly favorable to the tetanus bacilli, leads to the more or less rapid development of the latter.

As deficient phagocytosis seems the most important factor in the development of the disease, the reasons for an acute course, with a preceding long period of quiescence after the original infection, are more or less obvious. The host's resistance was at first good and later becomes impaired, perhaps because of the traumatism of a foreign body which in itself favors a later lodgement of pyogenic cocci approaching from the skin or blood, or there may be a secondary traumatism or general infection of otherwise innocuous bacteria. A short incubation period and a violent course of the disease would necessarily follow a considerable mixed infection with or without an accompanying damage to or necrosis of surrounding parts.

After death, the tetanus bacilli are found most abundantly in the immediate neighborhood of the point of inoculation and less abundantly in the blood and distant organs, and they have been demonstrated to be present and virulent months after the burial of their host. In addition to the bacilli, the characteristic postmortem findings consist only in rather slight degenerative changes in the spinal ganglia. The chief interest, of course, attaches to the toxin by which all the symptoms of the disease are alone produced. It was one of the first bacterial poisons isolated and was soon proved to exert its effects solely on the ganglia of the central nervous system. At present it is of merely academic interest to note that it has been separated into two distinct bodies—tetanospasmin and tetanolysin—one producing the characteristic spasm and the other destruction of the red blood corpuscles.

The horse and man are the two most susceptible animals, while fowls are very resistant. At low temperatures, frogs can withstand immense doses, but when their temperature is raised to 37° C. their susceptibility approaches that of the mammals. Young guinea-pigs are more easily affected than older animals. This varying susceptibility is obscure, and in different animals may be due to different causes, such as fixation of the poison by other organs than the ganglia of the central nervous system, or inability of the toxaphore portion of the poison to unite with these ganglia.

A greater or less degree of immunity, as in other infectious diseases, may be produced by the repeated injection into an animal of a toxin weakened by one of several methods. This immunity depends on a substance existing in the blood and body fluids which as yet is of undetermined origin. It was once thought to be derived from the cells of the central nervous system, as an emulsion of brain tissue and toxin can be injected into a susceptible animal with negative results. Other facts, however, render this conclusion improbable and the antitoxin is now generally believed to have a multiple peripheral origin. It does not arise exclusively, if at all, in the nerve ganglia, and, although phagocytosis seems to have a very important influence on this infection, the leucocytes are probably not the sole source of the protecting body. However it may be derived, the antitoxin acts by neutralization of the toxin very much as an acid neutralizes an alkali.

* Read before the Gouverneur Hospital Alumni Society, 1905.

A great many curious facts have been brought out by the work on immunization, but, as they have no direct bearing on the treatment of tetanus, at least so far as we know at present, they require only the briefest mention. The horse, for example, is one of the animals most susceptible to tetanus toxin and the chicken is one of the least susceptible. In the chicken, the poison can be demonstrated as circulating unchanged in the blood several days after inoculation. The horse, although far more susceptible, requires a much larger fraction of the lethal dose to give manifest symptoms than does the chicken, which gives a reaction with from one-tenth to one-fifteenth of the amount of toxin necessary to produce death. To show the same symptoms, the horse requires nearly one-half of the lethal dose. This has a bearing on the production of immunity artificially, because it has been found that for any given animal the toxin to be injected must be weakened in such a way—either by heating or by mixing with one of the iodin compounds or with varying quantities of antitoxin—as to make the "sickening" dose, or the amount which will just produce symptoms, as small a fraction of the lethal dose as possible. Then the longer the interval between the time of injection of the weakened toxin and the time when symptoms first appear and, in general, the more susceptible the animal, the better is the protective power of the serum. Without this protective substance, i. e., if it is withdrawn, the animal is much more susceptible to tetanus than an untreated animal. Moreover, during the process of immunization, an over-susceptibility is developed; that is, the animal under investigation can be killed by a fraction of the dose which would be innocuous to another animal previously treated with the endangered, immunized animal's serum. These facts and others are of importance or interest in the production of antitoxin, but apparently have no other bearing on the practical therapeutics of the disease.

There is much more direct interest attaching to the mode of absorption of the toxin. The incubation period was long a puzzle, for, no matter where the toxin was introduced into the body, provided it was not into the substance of the cord, a considerable incubation period always elapsed before the appearance of symptoms. Then it was noted that the toxin, after inoculation, could only be demonstrated in the blood and nerves, and that, as a general rule, the larger the animal the longer was the interval between infection and the outbreak of symptoms. With these slight suggestions, Marie and Morax, and later Meyer and Ransom proved the very remarkable fact that the toxin which was already known to act solely on the ganglia of the central nervous system, reached these ganglia only by way of the motor nerves. Wherever in the body it may be injected, some of the toxin diffuses through the tissues to the neighboring end-apparatus of the motor nerves; the rest of the toxin passes into the lymphatics, thence into the general circulation and out again to the capillaries, where it comes into contact with all the other motor nerve end-apparatus. From these points (under natural conditions), the toxin enters the axis cylinders of the motor nerves, through which it flows or is transmitted to the spinal ganglia. Even when injected into the subarachnoid space, provided no lesion of nervous tissue is produced, the incubation period is the same, as the poison follows the same course through the lymphatics, the blood and the capillaries, to the motor end-apparatus and thence back through the motor nerves to the cord and upward, probably in the motor tracts, to the medulla. The sensory nerves can not take up the poison and have no direct part in the process. Some of the experiments which elucidate these facts require a brief review.

It has long been known that the toxin exerted its effects solely on the central nervous system and that after death it could only be found in this system and in the blood. It can not be found, by the way, in any of the secretions or excretions, except in the urine, and then only after the experimental administration of enormous doses. Therefore, it remained to trace the progress of the toxin from the periphery to its final destination, and this Marie and Morax and after them Meyer and Ransom finally seem to have succeeded in doing. It was found that one and one-half hours after intramuscular injection in the hind leg of a guinea-pig the toxin was easily demonstrable in the corresponding sciatic nerve. If at the time of the injection the nerve were cut high up, the toxin could not be found in the nerve until after the elapse of about twenty-four hours, while if the nerve were cut six days before inoculation, or long enough in advance to insure degeneration of its axis cylinders, none of the poison was absorbed by the nerve. At the same time, if simultaneously with the injection of the toxin in the foot, the nerve were divided at about the middle of the leg, the proximal segment was found to contain no toxin, while the peripheral segment was full of it. Furthermore, when the nerve was cut off after it had absorbed and become charged with the toxin, the distal segment retained its charge, while the proximal gradually lost it, and, to supplement this, inoculation of the cut proximal end of a sciatic showed that subsequently the toxin could be demonstrated in the lumbar and then in the dorsal cord.

That the poison ascends in the cord as in the motor nerves was proved by the following experiment: Two guinea-pigs were taken and the spinal cord of one was severed at the level of the second lumbar vertebra. After the wound had healed, the sciatic nerves of each pig were inoculated with the same amount of toxin. The normal pig died speedily with general tetanus, while the other, with its cord cut, survived many days, showing tetanus only in the paralyzed hind legs, while the upper part of the body remained free from tetanic symptoms; death eventually took place apparently from exhaustion. Hence, if only the vital centers of respiration and circulation can be protected, death is at least not imminent. As a further proof of the importance of the motor nerves, it was demonstrated that a very small amount of the poison was sufficient to cause death if the toxin was injected into a motor nerve; a considerably larger dose if injected intravenously, and ten times the fatal intravenous dose was needed to cause death after a subcutaneous injection of the toxin. The length of the incubation period—that is, the time intervening between the inoculation of a motor nerve at any given point and the appearance of symptoms—was found to vary directly with the distance of the point of inoculation from the corresponding spinal ganglia. Inoculation of a purely sensory nerve yielded negative results. The poison apparently could not be taken up to the sensory nerves under natural conditions, but by direct injection into such a nerve the toxin was proved capable of diffusing through it up and down, as in the motor nerves, although more slowly. Whatever amount of toxin could be introduced into a sensory nerve, however, was always arrested in its progress to the cord by the posterior root ganglion. The discovery of this fact

led the investigators to try the effect of introducing the poison between the ganglion and the cord, and the result was the discovery of a unique and frightfully painful form of the disease which they aptly called "tetanus dolorosa." The animal died without any of the usual motor symptoms, apparently from exhaustion due to extraordinarily severe paroxysms of pain in the region supplied by the afflicted nerve. The cerebral tetanus produced by direct inoculation of the brain has for some time been known as another peculiar experimental form of the disease.

From the above facts, and because even if the toxin is injected subdurally under proper precautions, there is always the usual incubation period, it follows that the course of the poison is from the point of inoculation by diffusion to the nearest muscle end-apparatus of a motor nerve; at the same time, it is taken up by the lymphatics and passes into the general circulation and capillaries to all the other motor-nerve endings. Thence it travels centripetally and only in the motor nerves to the cord and in this upward to the vital centers in the medulla. The more concentrated the poison is at any one point, and the shorter the motor nerves as in facial or head tetanus, the greater is the likelihood of a primary local manifestation of the disease. Such instances are rare, but have been reported, and this must be their explanation.

Experimentally in animals, the characteristic stiffness and spasm generally begin in the region of the subcutaneous or intramuscular inoculation, and thence extend to all the rest of the body. The differences, however, are so slight in the artificially and naturally acquired disease, and the points of correspondence in reported cases so numerous, that results obtained in animals can be directly applied to man.

Nothing has been so clearly proved experimentally as the value of tetanus antitoxin and the generally pessimistic view of this valuable remedy is largely due to faulty technic in its use, and a clear understanding of its disposition in the animal economy should enhance the regard in which it is held, although at the same time it reveals its limitations.

After the injection of tetanus antitoxin subcutaneously, it passes rather slowly with the lymph into the general circulation. The maximum amount being found at the end of from twenty to forty hours. In the capillaries, it mixes with the fluids of the tissues and by these a portion is destroyed. The major part, however, ultimately passes unchanged into the secretions and excretions, the milk, feces and urine and at the end of six days there is left in the body only one-third of the original amount. At the end of three weeks it has entirely disappeared. The nervous system takes up none of the antitoxin and only after massive intravenous injections can even traces of it be found in the cerebrospinal fluid. Subdural injections of antitoxin pass quickly and almost completely into the blood and hence it is evident that its administration by lumbar puncture as ordinarily practiced is of small value.

The amount of antitoxin necessary to neutralize a definite quantity of toxin can be accurately estimated, as can also the lethal dose of toxin for a given animal. If, now, the toxin be administered subcutaneously first, and then be immediately followed by the necessary amount of antitoxin, the animal will show serious symptoms or die. The conditions are improved by reversing the experiment and giving the antitoxin first. In short it has been demonstrated that to protect such an animal the antitoxin must be injected no more than forty nor less than twenty-four hours before administering the toxin. If a longer interval elapses, the dosage of antitoxin must be increased, in other words, it is comparatively rapidly destroyed or excreted. After an intravenous injection of a lethal amount of toxin, the elements of time and quantity of antitoxin are even more apparent, for it has been found that two minutes after the introduction of the poison, double the neutralizing dose of antitoxin must be similarly administered in order to save the animal. After the elapse of eight minutes, ten times that quantity of antitoxin is required, and after ninety minutes the intravenous dosage of antitoxin must be increased to forty times that which was required to neutralize in a test tube the given amount of toxin. Furthermore, if tetanus spores are introduced into the tissues of a guinea-pig, and the development of symptoms awaited before administering the antitoxin, the pig can only occasionally be saved even by very massive doses of antitoxin.[1] Hence, it is evident that the toxin is absorbed rapidly and soon passes into the motor nerves, that the antitoxin is absorbed slowly, especially if injected subcutaneously or subdurally, and is quickly excreted or destroyed. It is also incapable of being taken up by the nerves which have a most extraordinary and fatal affinity for the toxin. This is emphasized by the fact that if only a fraction of the subcutaneous lethal dose be injected into the sciatic nerve of a cat no amount of antitoxin, even if it be introduced immediately thereafter into the jugular vein, can save the animal. Therefore, only that portion of the poison which is at the point of infection, and that which has gained access to the blood and lymph can be reached by the antitoxin as ordinarily given. If once a fatal dose of toxin has gained access to the nerves, the outlook would be hopeless were it not for the point suggested by one of the series of experiments published by Meyer and Ransom. In the first place, they introduced a lethal dose of toxin into the jugular vein of a cat, six hours later they exposed both sciatic nerves high up and injected them with antitoxin. The cat died within the usual length of time but both hind legs, the sciatic nerves of which had received the antitoxin, remained entirely free from tetanic manifestations. After this experiment they similarly exposed and injected the right sciatic nerve of a guinea-pig with antitoxin and followed this by inoculation of the subcutaneous tissue about both feet with a lethal dose of toxin. The pig also perished but the right leg, the one in which the sciatic nerve had been filled with antitoxin, remained unaffected by the spasms which attacked the rest of the body. The experiment was repeated in two days, with the same absence of tetanus in the protected limb. One dog died, and the other finally recovered but eventually showed some symptoms in the leg which had at first been artificially protected. In other words, although the antitoxin cannot under natural conditions be taken up by the nerves, it can be operatively introduced into them and so, at least for a time, block the progress toward the cord of the possibly fatal charge of poison within them. Even after the toxin reaches the cord it should be possible similarly to block its progress upward.

Clinically, it has long been known that prophylaxis is the most effectual treatment for tetanus, and this means thorough cleansing and disinfection and bacteriologic examination of all wounds, and if the tetanus bacillus is

1. See article on "Immunity" in this issue of THE JOURNAL.

found the antitoxin should be given immediately and repeated daily until at least two weeks have elapsed from the time of the reception of the infection. After the outbreak of the symptoms, to give antitoxin subcutaneously is useless or so nearly useless as to amount to a waste of good antitoxin, especially if the original focus of infection is not destroyed or removed. Subcutaneously the antitoxin is slowly absorbed and rapidly excreted or destroyed, while the toxin is rapidly taken up and quickly enters the motor nerves, where it is entirely inaccessible to the antitoxin. As therefore only that part of the toxin can be neutralized which is in the blood and tissues outside of the nerves, it follows that the antitoxin should be injected directly into a vein and into the tissues around the infected region. This places the medicament where it can do the most good in the shortest time, and even minutes are precious. Practically, the median basilic vein can be exposed and under proper precautions from 10 to 20 c.c. of antitoxin injected into its interior with an aspirating or large hypodermic syringe. Too little is far more dangerous than too much, as the remedy is entirely harmless and it must be present in considerable quantity when the amount of toxin, as under natural conditions, is unknown.

For this and the subsequent procedures, general anesthesia, preferably from chloroform, is imperative in spite of the danger of asphyxia, from vomiting in the presence of "locked jaws." Furthermore, the chloroform produces at least a temporary relaxation of greater or less duration and seems to that extent, to be beneficial. The subsequent nausea is also generally less than that following ether.

Then, following the suggestion of the experiments detailed above, the motor nerves which supply the region primarily infected should be exposed as near to the cord as possible and each injected by a fine hypodermic syringe with from 5 to 10 or 20 minims of antitoxin. As the usual location of the original wound is in one of the extremities this means a careful dissection of the axilla or base of the thigh. In the arm, all the nerves come together around the axillary artery and it is a comparatively simple procedure to expose first the axillary vein and then to identify the two heads of the median with the ulnar to the inner side and the musculocutaneous to the outer side and a little above, and behind the musculospiral and circumflex nerves. In the leg there is no difficulty in reaching the anterior crural nerve to the outer side of the femoral artery and the sciatic behind in the center just below the gluteal crease. The obturator can be found by flexing and abducting the thigh and making an incision high up in front of the fold produced by the gracilis and adductor magnus. The obturator foramen is felt and the nerve recognized at its upper anterior part in front and behind the adductor brevis. After isolating the nerves, a ligature is passed under each to facilitate its subsequent treatment and identification, and each is repeatedly punctured with the previously prepared hypodermic and enough antitoxin is thus injected into its substance to cause it to swell to three or four times its normal size. The loose ligatures are then left in place with the possible exception of one around the obturator, which is deeply placed and much exposed to infection. From day to day thereafter as the symptoms demand, the nerves can be drawn into sight by these ligatures and the treatment repeated. The wounds are then partially closed and dressed. Such violent manipulation and evident injury of motor nerves may seem unjustifiable, but the experimental facts seem to warrant it, and after many repetitions of the method detailed in the following cases I have never noted even a suspicion of damage or paralysis.

As the poison enters not only the nerves supplying the region primarily infected, but, by passing into the circulation, all the other motor nerves of the body simultaneously, it is evident that local nerve blocking only partially fulfills the indications. Presumably in the case of infection located in one of the limbs, a little more of the poison will gain access by direct transudation, to the local muscle end apparatus and a little earlier than will pass through the circulation to the other nerves and hence the necessity of stopping the local and major charge first. To prevent the lesser charge gaining access to the vital centers, the spinal cord must be similarly blocked. Bearing in mind that death from this disease is ordinarily due to asphyxia from spasm of the respiratory muscles and diaphragm, to arrest of the heart by spasm of the muscle, or to general exhaustion, if the vital centers governing the respiration and circulation are not first sufficiently affected there are two courses open, either injection of the antitoxin into the cauda equina by lumbar puncture or high up into the upper dorsal or lower cervical cord. In lumbar puncture it is necessary to wound one or more of the nerves in the cauda equina, as otherwise the injection is simply a subdural one which quickly passes from the lymph into the blood and can have no effect on the large charge of poison which is on its way up to the cord in the long nerves of the lower extremities. As the cauda equina begins opposite the first lumbar vertebra, a long needle should be inserted and manipulated back and forth until a twitching of one or both legs indicates that the desired nerve lesion has been produced. The injection of the antitoxin has then some prospect of being useful; from 10 to 20 c.c. are thus introduced in and around the wounded nerves. As this is manifestly working in the dark, I have often been tempted to perform a laminectomy in the lumbar region and to inject each nerve directly, as is done in the axilla or groin; but experience has not yet seemed to justify so drastic a procedure.

If, however, cyanosis be present when the patient first comes under observation, life is evidently in imminent danger, and the vital centers of respiration and circulation must be protected at all hazards. As the progress of the toxin is always upward in a centripetal direction through the nerves and cord and never downward, the antitoxin must be placel in the cord as near to the medulla as possible. Hence when the symptoms are urgent, a long hypodermic needle is entered near the median line posteriorly opposite the sixth or seventh cervical spine and passed through the spinal canal until the body of the vertebra is encountered. If a long, pointed needle is employed and is aimed at the center of the canal, one can hardly avoid penetrating the cord at this point, and I have thus repeatedly injected from 20 to 30 minims of antitoxin at a sitting, with absolutely no ill effects and with much apparent benefit; that is, the cyanosis has been relieved and the jaws partially or completely relaxed. The results in this respect have been so noticeable as to prove beyond question, in my mind, the value of the intraneural injections of the serum. I admit the danger of the procedure, involving as it does a hemorrhage into the cord, and hence have only practiced it in seemingly desperate cases. As re-

marked before, however, no ill effects so far have been encountered, and in at least one of the cases reported it was apparently life-saving.

In addition to the toxin which is in the blood and which has already gained access to the cord and nerves by the circulation and by diffusion, there is the original source of the infection to be treated. This is left to the last in order to avoid the obvious danger of multiple infection. After the intravenous, the local intraneural and the intraspinal injections of antitoxin the wound should be thoroughly cleaned and all foreign matter removed, and immediately the question of amputation arises. Removal of the affected member has fallen into undeserved ill-repute owing, I believe, to the earlier ignorance of the cause and course of the poisoning. In the first place, it is indispensable to destroy entirely all the tetanus bacilli in and around the wound, and for this purpose experience and experiment have proved that the antiseptics most valuable are, in their order of usefulness, strong tincture of iodin, 1-1,000, or even 1-500; solutions of bichlorid of mercury, and 1-30 or stronger solutions of carbolic acid. Iodoform in the shape of iodoform gauze packing is extremely useful owing to its iodin content. It is almost unnecessary to add that extensive contused and lacerated wounds filled with dirt, or with other foreign matter present, are a practically hopeless field for disinfection. The bacilli, in spite of all that can be done, are bound to multiply to a greater or less extent and disinfection with strong antiseptics by producing more necrosis, probably aids rather than hinders their multiplication. Hence, the only logical resource, removing as it does all the bacteria or as many as have not escaped into distant regions, and all the local nerve charge, is amputation as near to the body as possible. In my experience these severe infections have seemed practically hopeless from the outset and so an amputation might be said to be unnecessary, but it is submitted, like intraspinal injections of antitoxin in the cervical cord, as a desperate remedy, which might save some desperate cases.

If the source of infection is a small, more or less easily cleaned wound, the conditions are somewhat different, and experience has demonstrated the success of local treatment, although even in such conditions the question of amputation, preferably high up, should be seriously considered. After thorough local disinfection, supplemented by the swabbing of tincture of iodin into every crevice, the diffusing toxin must not be forgotten, and a plentiful amount of antitoxin must be injected into all the tissues surrounding the wound. Not till all this has been completed and the wounds properly dressed can the patient be put to bed. Then the whole process, including the anesthesia, should be repeated once each succeeding day until the symptoms subside. The intraneural and intraspinal injections can not be omitted, as the antitoxin apparently soon disappears from the points where it is placed in the nerves and the toxin remains and can then resume its progress toward the vital centers. The exhaustion from long-continued muscular spasm, which is one of the causes of death, must also be constantly combated by the usual remedies of quiet, easily assimilable food and the antispasmodics, of which the best seem to be chloral, morphin and the bromids. One case has recently been reported as recovering under the intraspinal administration of cocain and another by the use of curare, and, as in each the treatment was begun by disinfection of the primary wound, it must be assumed that further intoxication was stopped and the alleviation of the spasms (from the poison already in the nerves), and so of the exhaustion, was an important factor in the result. Both drugs are absorbed and exert their effects in a manner so analogous to the tetanus toxin, yet so antithetically, that an experimental investigation of their antidotal properties should be very valuable. In the absence of such exact knowledge, however, their employment is only to be recommended as an adjuvant to the antitoxin to aid in presenting exhaustion, and not as a specific. Curare, it should be stated, is a rather dangerous drug, of uncertain composition and dosage, and each sample should be tested on animals before its administration to man.

The limitations in the treatment of tetanus are, I think, obvious. Some of the cases are hopeless from the outset either because they come under observation too late or because of an overwhelming infection—and it is worth noting that animals are often so inoculated with tetanus that no amount of antitoxin can save them—or because of the location of the infection near to the medulla, as in tetanus hydrophobicus. The fact remains, however, that the antitoxin serum is the natural and best means of combating the disease, and the essential factor in its successful use is the technic of its administration. The following cases are submitted to illustrate its employment.

It would be unwise and unfair from so short a series to expect any vast improvement over the mortality statistics hitherto published, but the fact that the mortality is less than that usually given, which is between 40 and 50 per cent. for all antitoxin cases, is suggestive. The most important fact is that the method of treatment is based on sound experimental proof, and though apparently drastic and more or less dangerous, especially the high intraspinal injections, no ill effects whatever have been noted. A careful perusal of these histories reveals many errors in the technic which is advised, but this was principally due to the fact that the importance of each step was not at first fully appreciated.[2]

CASE 1.[3]—J. H., aged 12 years, was shot in the lower part of the palm of the left hand by a toy pistol on March 17, 1904. He was immediately thereafter treated in some dispensary by the application of a wet dressing, which was changed on March 19 by the family physician, who then cleaned the wound of fragments of "wadding." Nothing abnormal further was noted until April 2, when his mother observed that he moved with some stiffness.

April 3: In the morning he showed marked dorsal rigidity and complained of difficulty in chewing and cramps in the back and legs.

Examination.—In the evening I found him with jaws tightly locked in trismus and the muscles of the back and legs rigid. The opisthotonos position was so pronounced that it was only with difficulty that he was carried in a cab to the hospital.

Treatment.—At 11 p. m., under chloroform anesthesia, the lower end of the left brachial plexus was exposed in the axilla and each nerve trunk, after repeated puncture with a fine hypodermic needle, was injected with m. x-xv of antitoxin, or enough to cause it to swell to triple its natural size. A long needle was then inserted into the spinal canal between the second and third lumbar vertebræ and, after withdrawing about one dram of cerebrospinal fluid, a similar amount of antitoxin was injected. Just previous to this, however, the needle was moved back and forth to wound or to abrade the nerves in the cauda equina. The wound in the palm was

2. All the facts given above and the references to the literature can be found in the Handbuch der Pathogenen Micro-organisms, Vols. ii and iv (Kolle and Wassermann, 1903).

3. N. Y. Medical Record, May 21, 1904, p. 813.

next thoroughly disinfected, swabbed with tincture of iodin and packed with iodoform gauze.

Course of the Disease.—April 4: Slight improvement was noted. Nevertheless, he was again anesthetized, the wound in the axilla was opened and one of the nerves, probably the median, was injected with antitoxin. The lumbar puncture and injection of one dram of antitoxin was repeated, as was the dressing of the hand, which was swabbed with tincture of iodin. During this day 60 grains of chloral and 120 grains of bromid of soda were given in divided doses. No other treatment followed except daily dressing of the wound in the hand with iodoform gauze packing, and the improvement continued. He was discharged cured on April 23.

CASE 2.[4]—J. M., aged 11, received a punctured wound in the sole of the left foot from a rusty nail on April 25, 1904.

May 2: Seven days later at 6 a. m. he complained of stiffness about the jaws and neck and was unable to eat. He was brought to the hospital in the afternoon showing the picture of severe acute tetanus, and was given 20 c.c. of antitoxin subcutaneously, by the house staff. During the night the trismus and general rigidity became worse.

Treatment.—May 3, at 11 a. m., under chloroform anesthesia, I exposed the left anterior crural and sciatic nerves and injected into each from 20 to 30 minims of antitoxin and then two drams by lumbar puncture into the cauda equina. In manipulating the needle to wound these nerves (the legs were made to twitch), there was quite a free flow of blood but no ill results followed. The wound in the foot, which was nearly healed, was laid freely open, disinfected, swabbed with tincture of iodin and packed with iodoform gauze. A culture from this point subsequently showed abundant tetanus bacilli. At the end of the operation there was a noticeable improvement in the relaxation of the masseters and muscles of the back, which was undoubtedly due to the chloroform. During the night following, however, the symptoms returned with severe convulsions.

Course of the Disease.—May 3 I found him slightly cyanotic, with every muscle rigid, and lying on pillows to permit the opisthotonos position. The outlook seemed hopeless, as the temperature had risen to 103 and the pulse to 120-130. Under chloroform, one dram of antitoxin was injected directly into the spinal cord between the second and third dorsal vertebræ, with the intention of protecting at all hazards the respiratory center. The sciatic and anterior crural nerves were also injected as before and the wound in the foot swabbed with tincture of iodin and redressed. Rectal feeding alone was possible during this day. As in the previous case, the chloroform seemed to be of considerable temporary benefit.

May 5: There had been no convulsions during the night, and the rigidity was so much better that liquid food could be taken by mouth. The only treatment on this day consisted in the change of dressings, which was continued daily until discharged.

May 6: The trismus and rigidity had slightly increased over the previous day and, under chloroform, one dram of antitoxin was administered through a lumbar puncture, after previously scratching the nerves enough to cause the legs to twitch.

May 7: There was some improvement, but the lumbar puncture was repeated under chloroform as before.

May 8: From this date until discharge, on May 18, there was steady and rapid improvement and no more antitoxin was given. No sedatives were administered at any period in the treatment, as this was considered a crucial case and it was desired to prove the value of the antitoxin and the technic of its dosage.

CASE 3.—W. M., aged 22, received a punctured wound in the left wrist with a cotton hook on July 2, 1904. The wound subsequently showed a little infection but soon healed. Another wound was received from the same hook in the right palm on July 10, which had not healed when he first noticed some stiffness of the jaws and difficulty in eating and walking. July 29, this gradually increased, and he was brought to the hospital on August 10, with marked symptoms of tetanus.

Examination.—The masseters and muscles of the back and legs were rigid. He was unable to sit up in bed. Under chloroform anesthesia, both axillæ were opened and the lower ends of the brachial plexuses exposed, as I was uncertain which wound was the source of the infection. All the nerve trunks were punctured repeatedly with a fine hypodermic needle and each injected thus with 5-10 minims of antitoxin. About 10 c.c. of the antitoxin were then injected around the cicatrix in the left wrist and the nearly healed punctured wound in the right palm. After this, the cicatrix and the wound were freely excised and the raw areas swabbed with tincture of iodin and packed with iodoform gauze.

Course of the Disease.—August 11: The rigidity was less, the patient could take liquid food by mouth, which was impossible the previous day, and from this time on there was a steady, slow improvement until he was discharged cured August 25. No other treatment except the daily dressing of the wounds was practiced except the antitoxin which was administered on August 10.

CASE 4.[5]—E. D., aged 5, received a punctured wound in the neighborhood of the right knee from a sliver of wood nine days before admission to the hospital on June 20, 1904.

Examination.—There was marked trismus and opisthotonos, with general convulsive spasms every ten minutes. The first symptoms of trismus had been observed on June 18, or seven days after reception of the injury. The original wound had healed without reaction.

Treatment.—At 10 p. m., under chloroform anesthesia, the right anterior crural and sciatic nerves were exposed by Dr. Schley and each injected with 3 c.c. of antitoxin. Then 10 c.c. were injected into the region of the cauda equina between the second and third lumbar vertebræ, after previously wounding the nerves slightly by manipulation of the needle. Ten c.c. were also given subcutaneously. In the subsequent treatment, moderate doses of chloral and bromids were also administered by rectum.

Course of the Disease.—June 21: Several convulsions occurred during the previous night. The temperature had risen to 103 and the pulse to 120. Chloroform was again given and the anterior crural and sciatic nerves were injected with antitoxin as before.

June 22: Some improvement was noted during the night, but the chloroform and the intraneural injections were repeated.

June 23: The patient seemed to be losing ground so much that frequent inhalations of chloroform were required to allay the convulsions.

June 24: Slight improvement began to appear, although in the afternoon there was a severe convulsion accompanied by cyanosis.

June 25: One severe convulsion was noted; the general rigidity remained nearly unchanged and the intraneural injections were repeated under chloroform anesthesia. Later in the day there was so much improvement that liquid food could be given by mouth.

June 26: The improvement from now on was steady and the patient was eventually discharged cured without further resort to antitoxin. The original wound had healed without reaction and was not disturbed in the whole course of the treatment.

CASE 5.—W. W., aged 8, was run over by a cart on April 29, 1905, and received a bad contused wound of the right foot.

May 8, ten days after the injury, trismus was first noted, and in the afternoon there was general rigidity with opisthotonos and some cyanosis.

Treatment.—At 4 p. m., under chloroform, I exposed the right anterior crural, sciatic and obturator nerves, and after passing a ligature under them, injected each with from 10 to 20 minims of antitoxin; one dram was then injected between the second and third lumbar vertebræ, after scratching the nerves enough to cause the legs to twitch. The extensive suppurating wound in the foot, which involved nearly the whole plantar aspect and exposed the os calcis, was made as aseptic as possible, swabbed with tincture of iodin, packed with iodoform gauze, and two drams of antitoxin were injected in

4. N. Y. Medical Record, July 2, 1904, p. 12.

5. Reported by Dr. Schley in N. Y. Medical Record, Oct. 15, 1904, p. 616, from which this is quoted.

and around it. This dressing and local injection around the wound, of antitoxin, was repeated daily. Amputation was advised in this case, but refused. The infection was so extensive that I regarded the case as hopeless, especially when the culture ground could not be removed.

Course of the Disease.—May 9: There were several severe convulsions during the night and the condition was evidently worse; as cyanosis was marked, under chloroform, one dram of antitoxin was injected between the sixth and seventh cervical vertebræ, directly into the cord; two drams were then given into the median basillic vein and the intraneural injections into the sciatic and anterior crural nerves were repeated. The latter procedure was much facilitated by the long ligatures which had been left loosely encircling these nerves. Large doses of chloral and bromid were also given throughout this day and until the end, by rectum.

May 10: Considerable improvement was observed; the trismus was so much less that liquid feeding by mouth was possible. There were no convulsions. In the afternoon, by mistake, diphtheria antitoxin was given by lumbar puncture, intravenously, intraneurally and around the wound, with disastrous results, for the error was not discovered till the next day, and the improvement noted on May 10 had all disappeared, the temperature had risen to 104, the pulse to 150-160, and convulsions were reappearing.

May 11: The anesthesia and the numerous injections, this time with the proper antitoxin, were all repeated, including the puncture of the cervical cord.

May 12: The convulsions had decreased in severity and frequency, but the rigidity was marked and the picture was one of exhaustion, as the temperature was rising and the pulse almost imperceptible.

May 13: Death occurred during the morning.

Remarks.—I believe this patient might have been saved, as on May 10 the improvement was very noticeable, but the substitution of diphtheria for tetanus antitoxin was fatal. The error was due to the label, which was simply "antitoxin." I was also to blame in that I did not give an intravenous injection of tetanus antitoxin until the second day of the treatment, but trusted to the intraneural and local injection.

The following two cases I regard as instances of overwhelming infection which can not be saved by any means in our power.

CASE 6.—P. F., aged 41, received an extensive crushing wound of the right forearm on August 22, 1904, exposing the muscles and tendons from nearly the elbow to the wrist. A heavy stone had fallen on the arm, crushing it in a muddy street. September 2, or eleven days after the injury, trismus was first noted, and in the afternoon he was brought to the hospital with every symptom of severe tetanus.

Treatment.—Under chloroform, the right brachial plexus was exposed in the axilla and each nerve trunk injected with about 10 minims of antitoxin; 10 c.c. were then injected between the second and third lumbar vertebræ into the neighborhood of the cauda equina, after scratching these nerves sufficiently with the needle to cause the legs to twitch. Amputation of the arm was refused and so the best disinfection possible under the circumstances was attempted in the extensive and dirty wound, which was then swabbed throughout with tincture of iodin.

Course of the Disease.—Convulsions every few minutes with constant opisthotonos and considerable cyanosis were noted as increasing. Under chloroform, a long needle was introduced between the second and third dorsal vertebræ and 5 c.c of antitoxin were injected into the substance of the cord. The intraneural injections in the axilla were repeated, as was the dressing of the wound. For a few hours that afternoon, it is worthy of remark that the trismus seemed much improved but all the symptoms increased in severity during the evening and death occurred quite suddenly, apparently from spasm of the heart at 11 p. m.

CASE 7.—M. R., aged 49, sustained a severe crushing and laceration of the hand with compound fractures of two metacarpal bones by being run over in a dirty street on May 3, 1905.

May, 9 he first complained of some difficulty in swallowing, indicated by signs, but as he spoke no English and nothing abnormal was apparent, the condition was not diagnosed until the following day.

May 10. The symptoms of severe tetanus were very evident.

Treatment.—Under chloroform, the axilla was opened and the brachial plexus injected with antitoxin, 3ii were given into the median basilic vein and 3ii, by lumbar puncture after scratching the nerves, in the cauda equina. The hand was amputated through the middle of the forearm. Some improvement occurred during the afternoon, but at 8 a. m. on May 11, having passed a quiet night, he had a severe convulsion and died suddenly without cyanosis and evidently from cardiac spasm.

NEWER AIDS TO DIAGNOSIS IN DISEASES OF THE URINARY TRACT.*

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The urinary tract may be subdivided into four parts, namely, the kidneys or secreting part, the ureters or conducting part, the bladder or receptacle, and the urethra with its accessories in the male.

Each of these parts may be the subject of pathologic changes and at times it may be very difficult or even impossible from the symptoms alone to determine to which part or parts the disease is confined.

The mere presence of pus or of blood in the urine affords no evidence as to its origin, and when the symptoms do not indicate the origin some means must be employed which will enable one to investigate each portion of the urinary tract separately.

A number of ingenious devices have been invented recently by the use of which one is enabled to obtain information of the greatest importance concerning the condition of the various portions of the urinary tract.

Among these may be mentioned, first, the catheterizing cystoscopes and the urine segregators. By the use of these instruments one is enabled to collect the urine from each kidney separately and thus to differentiate the diseases of the upper urinary tract, or kidneys and ureters, from those of the bladder, urethra, etc. They also enable one to determine whether there are two kidneys present or only one, and if two whether the disease is confined to one or involves both, and, if the latter, the extent of the involvement.

Each of these methods, namely, ureteral catheterization and segregation, has its advantages and a proper selection of the method to suit each particular case is necessary in order that the best results may be obtained.

Ureteral catheterization is suitable in a greater variety of cases than is the segregator, for the reason that it possesses many advantages which are independent of the mere collection of the urine.

If the catheter pass without obstruction as far as the kidney it indicates that the ureter is pervious. If it meet with an obstruction, the distance which it enters will locate exactly the seat of the obstacle.

The use of the catheter or bougie is of great aid in the diagnosis of ureteral stones. Notwithstanding the importance of the *x*-ray in the diagnosis of this condition, a number of errors of interpretation of small shadows in the pelvis have been made which might have been avoided had ureteral sounding been practiced.

Again, the catheter may be introduced as far as the

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* Read before the Western Surgical and Gynecological Association at Milwaukee, Wis.

pelvis of the kidney and may drain a hydronephrosis or a pyonephrosis, the amount of fluid not only indicating the condition present, but also approximately the size of the cavity drained.

Contamination of the urine with pathologic products from the ureter may be prevented by introducing the tip of the catheter as far as the pelvis of the kidney. When it is desired to collect the urine for several hours or more catheterization is the only method applicable.

It should not be concluded that ureteral catheterization is a simple and perfect method. Aside from the fact that in a small percentage of cases the catheter can not be introduced, there are other disadvantages. For example, the introduction of the catheter often causes a slight hemorrhage which may contaminate the urine; or when left in place a long time the catheter may cause a severe ureteral colic requiring large doses of morphin to control the pain. The flow of urine may cease suddenly or gradually owing to the lumen of the catheter becoming occluded or to the production of a reflex temporary anuria.

While a catheter is in the ureter on one side, it is never safe to judge of the condition of the kidney on the uncatheterized side by the character of the urine taken from the bladder, because it may not only be contaminated by products from the bladder, but also by products from the catheterized kidney, as a certain amount of urine flows around the catheter and the urine from the bladder to a certain extent is mixed urine.

While the possibility of infecting a healthy ureter or kidney in the presence of an infected bladder can not be denied, still it must be acknowledged that this accident has rarely occurred.

The fact that such an unfortunate accident may happen, however, demands of one the greatest care and circumspection in catheterizing a patient under such circumstances, and makes it incumbent on one to catheterize only when the desired information can not be obtained in any other manner.

The cost of catheterizing instruments and the great skill and dexterity, acquired only by long practice, necessary to use them must unavoidably restrict the use of this exceedingly valuable aid to diagnosis to the hands of comparatively few.

The urine segregator finds a more limited field of usefulness than does the ureteral catheter. There are two kinds of segregators—the Harris instrument, which raises the posterior wall of the bladder into a longitudinal fold, thus forming a watershed between the ureteral openings, and those which attempt to form a water-tight septum within the bladder, such as Neumann's, Cathelin's, Luy's, etc.

Theoretically the latter are less reliable than the former, for the reason that it is very difficult to form a water-tight joint by pressing a smooth edge against a mucous membrane naturally thrown into folds (such as the bladder wall when that viscus is empty), and in practice this is found to be true.

My experience is based on the use of the Harris instrument. In order that the results from the use of the segregator may be satisfactory and reliable, the cases in which it is used must be properly selected.

For instance, those cases are not suitable for the segregator in which the ureteral openings are abnormally close together or so arranged that an efficient septum can not be raised between them; or cases in which the base of the bladder is so thick or distorted that a suitable watershed can not be made; or cases in which the bladder is too small or contracted to permit the opening of the instrument; or cases in which there are intravesical growths which interfere with the proper working of the instrument; or cases of irregular or excessive enlargement of the prostate. Some of these conditions render catheterization of the ureters impossible as well.

The most satisfactory results are obtained with the segregator in diseases of the kidneys when it is desirable to know whether the affection is unilateral or bilateral; when one wishes to learn whether certain pathologic products come from the kidneys or from the bladder, and when one wishes to determine the amount of work done by each organ. In such cases the results are very satisfactory and the method has the advantage over catheterization in that it requires much less practice and skill.

By this it is not intended to convey the idea that segregation is a very simple procedure; on the contrary, it requires the most careful attention to the minutest details, and I am convinced that the reasons why some have failed at times in the use of the instrument are that an unsuitable case was selected; or that some of the details were omitted; or that too much was expected of the instrument. It should also be remembered that an instrument is always only an inanimate mechanical device which, when properly used, furnishes certain data, but a correct interpretation of the data depends entirely on the knowledge and experience of the operator.

As has just been stated, there are a number of conditions unsuitable for segregation and some in which catheterization is also impossible. It is necessary to recognize these conditions in order to make a suitable selection of the method of procedure in the case in hand, and to do this a cystoscopic examination is frequently absolutely essential.

In every case in which there is the slightest doubt as to the condition of the bladder, a cystoscopic examination should precede an attempt to segregate the urines. So important is this, in my opinion, that I look on a cystoscopic examination as the keystone of the diagnostic arch in diseases of the urinary tract. It is often truly remarkable the amount of information an expert at times will gather not only in regard to the involvement of the kidneys, but of the side affected and approximately of the relative amount of work done by each kidney by a simple cystoscopic examination. I feel certain that any one familiar with its use would unhesitatingly choose the cystoscope as the most valuable of all instruments of diagnosis in this line of work.

Having collected the urine by one or the other method the next question to determine is the functional activity of the kidneys both combined and separately. The recent attempt to explain the secretion of urine entirely by osmology has not met with general acceptance, and the cellular activity theory of Heidenhain is still necessary to a satisfactory explanation, although osmotic tension is undoubtedly an important factor. Such being the case, the amount of solids eliminated with the urine must represent the functional activity of the kidneys.

Up to quite recent times dependence was placed on the specific gravity and on chemical analysis to determine the amount of solids present in the urine, but recently another method has been introduced. It has been known for a century or more that the freezing point of a solution of any substance is lower than that of the solvent, but it is only during the past few years that the laws of this phenomenon have been known. It

is now known that the freezing point of a liquid bears a direct ratio to the number of molecules held in solution.

Koranyi was the first to make use of this fact as a means of determining the amount of solids held in solution in the urine, blood, etc., and the method has since come into more extensive clinical use under the term cryoscopy. The technic of the procedure need not be described here. The real value of cryoscopy above that of other methods when applied to the urine is questionable.

Casper and Richter,[1] however, claim that it is practically the only method of any value in determining the total solids of the urine, and, therefore, the amount of work done by the kidneys, and would have us believe that the estimation of the percentage of urea, chlorids, etc., is of no significance. Their argument is that the amount of nitrogen containing substances and of chlorids in the urine may vary so widely under varying conditions of diet, etc., even in health, that their estimation is without practical significance. These substances, however, form more than 85 per cent. of the total solids of the urine, and if their estimation by one method is of no significance surely their estimation by another method is equally without value.

Cryoscopy is but another method of estimating the total solids of the urine, for the freezing point is an index of the number of molecules in solution. Cryoscopy when applied to a single specimen of urine is of no more value than is the specific gravity of the same specimen. In fact, as Clowes[2] says: "On comparing the freezing point directly with the specific gravity a constant relationship is found to obtain which only varies within such narrow limits as almost to fall within the range of experimental error."

Each 0.01 of the decimal of the specific gravity of urines depresses the freezing point 0.75 C. Consequently, if the decimal part of the specific gravity be multiplied by the constant 75, the freezing point will be obtained. This applies practically to all conditions except when sugar is present or albumin in considerable amount. In order to be able to attach any value to the amount of solids contained in a given specimen of urine, however, one must take into consideration the factors, time and the body weight of the patient. It is very interesting to note how the product of these three factors averages up from hour to hour under ordinary circumstances. The amount of solids in a specimen of mixed urines is not of so much diagnostic value as is a marked difference between the amounts found in the separately collected urines. It is here, again, that the value of ureteral catheterization or segregation becomes evident, for under normal conditions each kidney secretes approximately the same amount of urinary solids in a given time. If there be a marked diminution in the percentage of solids found in the urine from one kidney, when compared with the percentage of solids found in the urine from the opposite kidney, it is positive evidence of an abnormal kidney.

One can not tell, however, from a determination of the percentage of solids alone whether or not the combined work of the two kidneys is sufficient. If by renal insufficiency is meant the failure to remove from the body all of the excrementitious substances which normally should be eliminated by those organs, then renal insufficiency, except it be of high degree, can not be determined simply by an examination of the urine, because it is impossible to know how much material has been brought to the kidneys for elimination.

We, therefore, turn from the urine back to the body to determine, if possible, whether any of the excrementitious substances have been retained. Evidence of such retention is sought along two lines: 1. Symptoms due to the substances retained. 2. The presence of such substances in the body fluids in increased amounts as determined by physiochemics.

It is unnecessary to mention all the symptoms of imperfect elimination, but attention is particularly directed to increased arterial tension as shown by the sphygmomanometer.

Under the second heading we have to consider cryoscopy as applied to the blood. The freezing point of the blood in health is found not to vary materially from —0.56 C. This uniform point is maintained by the kidneys acting as a regulator of the osmotic tension of the blood. When the kidneys fail to eliminate properly, or, in other words, become insufficient, the retained substances increase the osmotic tension of the blood, which is made manifest by a lowering of its freezing point.

Based on a somewhat limited number of observations, it is assumed that a lowering of the freezing point of the blood to or below —0.60 C. is an indication of retained excrementitious products, or, in other words, of kidney insufficiency.

Were kidney activity the only factor involved in maintaining the normal freezing point of the blood, the problem might prove to be a simple one, but such is far from being the case. Some of the factors influencing the freezing point of the blood are unknown, others are but slightly known, but that the freezing point varies considerably is certain. For instance, in the anemias, or when the percentage of hemoglobin is diminished, the freezing point of the blood is found to be much higher—0.52 or more.

If 0.04 of a degree is sufficient to mark the dividing line between normal blood and that of renal insufficiency, and if the anemias can raise the freezing point 0.04 or 0.06 of a degree, it is easy to see that marked renal insufficiency may be associated with anemia, and the blood still have a normal freezing point or one even above normal.

This was well shown in one of my cases. A young woman had had but one secreting kidney for some time, and that one badly involved, as it furnished but a small amount of albuminous urine containing numerous casts and blood cells. She was in an extremely low condition, yet the blood froze at —0.53 C. There was a high degree of anemia, 2¼ million reds and 40 per cent. hemoglobin.

On the other hand, the freezing point of the blood may be found as low as —0.60 C. or lower with normal kidneys in diseases of the lungs or heart, in which oxidation is below normal; in some of the fevers; in malaria and in diabetes (Bouchard).

From this it follows that until we know the influence of other factors on the freezing point of the blood so as to make the necessary corrections therefor, we are unable to affirm that there is renal insufficiency on the results of cryoscopy of the blood alone.

In order that reliable deductions in regard to renal sufficiency or insufficiency may be made from cryoscopy of both the urine and the blood, it is necessary to know concerning the former the amount secreted in a given time, together with the weight and general diet of the

1. Functional Diagnosis of Kidney Disease, 1903.
2. Amer. Jour. of Physiology, 1903, vol. ix. No. 5.

patient, and concerning the latter the amount of hemoglobin present and such other factors as may influence the freezing point.

When cryoscopy is applied in a differential sense to the separate urines, it becomes of great value in determining the amount of work done by each kidney.

The use of phloridzin as a test of renal activity was first employed by Klemperer. As is well known, phloridzin, when injected subcutaneously, produces a temporary glycosuria, and the amount of sugar eliminated by each kidney depends on the amount of active parenchyma possessed by the kidney.

Ureteral catheterization or segregation, therefore, must be used in connection with the phloridzin test, for this test becomes of value only when the amount of sugar contained in the separate urines is compared. When used in this manner the test has some value. The methylene blue test is purposely omitted, as its value is probably not great. The value of the *x*-ray in the diagnosis of renal and ureteral calculi has become firmly established and need only be mentioned here.

In conclusion, then, the newer aids to diagnosis in diseases of the urinary tract may be arranged in the following order, according to their value:

1. The cystoscope.
2. Ureteral catheterization or segregation with comparative analyses of the separate urines.
3. The *x*-ray.
4. The phloridzin test.
5. Comparative cryoscopy of the separate urines.
6. Cryoscopy of the blood with the necessary corrections made.

NEURASTHENIA.*

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Neurasthenia is a rather comprehensive term derived from the Greek "neuron," nerve, and "asthenia," exhaustion or weakness, and covers a variety of functional disturbances of the nervous system, with great irritation and lowered vitality.

It is due to a variety of causes, chief among which are strenuous life, excesses of various kinds, overwork and worry. Neurasthenia, also, is often a result of other diseases, such as influenza, typhoid, syphilis, alcoholism or chronic narcotism, surgical operations, anemia, shock, injuries, autointoxication, impaired metabolism, and in women menstrual or other troubles of the generative organs, such as prolapsus, lacerations, the menopause, etc. In males, prostatitis and masturbation are causative factors. Most authors acknowledge that heredity plays an important rôle by endowing the individual with a neuropathic tendency, and point to the progeny of tubercular, alcoholic or syphilitic parents as proof. There is a close relationship between neurasthenia and the sexual function. Neurasthenia usually occurs between the ages of 15 and 45.

SYMPTOMS.

Great fatigue—mental and physical—occasioned by the least exertion of body or mind, general irritability of the whole nervous system, with vagaries of any of the special senses and intractable insomnia, are the more pronounced symptoms. The mind is irritable and apprehensive and there is loss of memory. Curious and interesting mental perversions are frequent, and melancholia is often pronounced.

The reflexes are heightened, and muscular tremors in the extremities are seen. The spine is nearly always sensitive, and backache is a persistent symptom. The urinary secretion is generally increased, the fluid being of a low specific gravity. There may be obstinate constipation, or a watery diarrhea. Exhaustive sweats occur and there is usually a coldness of the hands and feet, sometimes a subnormal temperature.

Tachycardia is a prominent symptom, and headaches are common. Anorexia is often pronounced. Hyperesthesia of various parts of the body often occurs, and an interesting symptom, seen sometimes, is severe pain in the region of the appendix simulating appendicitis. A sense of suffocation, throbbing of the arteries and vertigo are common symptoms. Vision is usually impaired. There is more or less sexual impotence.

PATHOLOGY.

There is a starvation of the nerve cells, due to deficient metabolism, with an accumulation of the waste products of the body, which enter the circulating medium, causing an autointoxication, and irritation of the cortex, and through the nervous system an inhibition, or perversion, of the functions of various organs.

The body secretions are altered, the kidneys rarely throw off the solids like they should and uric acid accumulates and adds to the irritability of the already quivering nerves.

The nutrition of the whole body is usually greatly impaired. There is evidently deficient oxidation—a point which should be remembered in the treatment. The absorption of toxins from the intestinal canal—caused by changes in the digestive juices, by imperfect digestion, fermentation and by bacteria—constantly takes place, and is the chief cause in perpetuating the trouble.

One should remember, in studying functional nervous troubles, that severe mental strain, grief, great worry, or marked depression will alter or inhibit the secretions of a number of the organs of the human body.

Close study and clinical observation have led me to believe that the primary or essential causative factors in hysteria, neurasthenia and incipient insanity are closely allied and correlated.

PROGNOSIS.

While these cases are exceedingly hard to treat, still, with tact, persistence and careful, thorough treatment, and where there is no pronounced hereditary taint, the prognosis is usually good.

TREATMENT.

First of all treat and remove the cause; then with nutrition rebuild the impoverished and wasted nerve cells, and induce to activity all the various functionating cells of the body. Yet, treatment must not only be of the body, but of the patient's mind as well. This may partly be accomplished by pleasant surroundings, by cheerful companionship, by music and by out-door games, drives and other diversions, as the patient improves.

It is well to remember that in this disease we have more or less degenerative changes occurring in the nerve cells, admittedly due to irritation and starvation—no matter what the primary cause may have been—and a loss of tonus, with a perversion of certain functionating cells.

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* Read before N. C. Medical Society, May 23, 1905.

Just what changes take place in the internal secretions, or the rôle they play in this trouble, is not known. We do know, however, that the whole human economy becomes erratic, and that there is apparently a pathologic reciprocity between the sensitive brain and the whole perverted and diseased digestive tract.

Physical exercise, or work, is necessary to the proper performance of the functions of the body—a fact that escapes most people—as it increases respiration, circulation, oxidation and elimination; hence, exercise, graduated from passive to the most active, is of the utmost importance in the treatment of neurasthenia.

That the waves of sunlight have a powerful curative influence in the treatment of disease, is recognized; sunlight should be used in the treatment of all cases of neurasthenia—sun-baths being especially beneficial. As soon as possible, patients should be kept in the open air, where the oxygen, so necessary, may be obtained in sufficient quantities.

The patient must make every effort to get well, for this is a disease where self-help is of the utmost value.

Cases due to alcoholism or chronic narcotism should be treated for those habits and their baneful influence removed. In women where the disease is due to lacerations, malpositions, etc., surgical intervention should be insisted on, as a cure is impossible so long as the primary cause exists.

Persons who have suffered with neurasthenia should for some time live the "simple life," and avoid the rush, noise and worry incident to city life; should be careful and moderate in their diet, should avoid excesses of any kind, should have regular habits, and should take plenty of exercise in the open.

The patient should have sleep—and plenty of it. At the beginning of the treatment he must have absolute rest—mental and physical. Massage in the morning, followed by a sponge bath and an alcohol rub, are very invigorating and should be employed. Later, as the patient improves, he should be given the cold douche. Electricity in the form of the static or mild faradic current, applied particularly over the spine, soothes the nerves and aids the cure by stimulating cellular activity.

Weir Mitchell's system of treatment may be used in the worst cases. High irrigation of the colon is useful in suitable cases. Both the hot and cold pack are very beneficial, used according to indications; the hot pack being one of our best remedies for the intractable insomnia which is present in these cases.

As hypernutrition is an end sought for, the patient should be fed often of easily digested, or predigested liquid food. Milk, egg albumin, meat soups, etc., should be used at the beginning, followed by more solid food as the digestion and general condition improve. Fruit juices are also of much benefit.

All the eliminating organs must be kept active by appropriate remedies. This is one disease where suggestion—either simple or hypnotic—often gives most brilliant results; but it must be used tactfully.

A mild but invigorating climate, change of scenery, sea baths, or a sea voyage are all of great utility in the treatment of neurasthenia.

As to drugs, I find the glycerophosphate of calcium and strychnia nitrate to be the best builders, while the compound syrup of hypophosphites is a close second. I give the glycerophosphate in 3 grain doses.

It is well to give a good mercurial purge at the beginning of the treatment, and the bowels afterward should be kept open by laxatives. Phosphate of soda and cascara are excellent for that purpose. Where there is much gastric irritation or catarrh, lavage with the stomach tube should be employed. The nitrate of silver pill (1/8 grain) may be used for the same trouble. Iron and arsenic may be given with benefit—the peptonated preparations of iron being best.

Salicylate of soda, or some of the laxative lithia salts may be used to eliminate the uric acid and to relieve pain. When necessary hypnotics may be employed, such as the ethyl-menthyl-sulfone compounds.

Patience and perseverence are necessary to obtain results. I may add that I have found the sulphocarbolates and creosote to give efficient service in the fermentation and diarrhea incident to this disease.

APPENDICITIS IN TRAINED NURSES.

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The great frequency of this disease among the pupils of the training school of the Denver City and County Hospital has attracted my attention, as well as that of other members of the staff, for some years. I have therefore collected the notes of 10 cases occurring in the past four years, and all operated on successfully by Drs. Freeman, Fleming, Craig, Van Meter, Bagot and Lyman. Nine of these cases were under my care, as far as diagnosis and the medical treatment were concerned, the remaining one under that of Dr. Henry Sewall. Several trained nurses came from outside the hospital for operation for appendicitis during this interval, but, not belonging to the school, they do not concern us at present. At least three mild cases, presumably positive as to diagnosis, but either refusing or delaying operation, are also omitted from consideration in order that we may deal only with completed cases in this study. Meanwhile, I have recommended operation on two trained nurses from other cities, who were successfully operated on elsewhere, these likewise being omitted from our study. A single case recorded, after several attacks while in the school, returned just after graduation for an interval operation, and is included in the statistics. In order to broaden the scope of our inquiry, I have obtained details of four cases operated on at St. Joseph's Hospital, but one of whom I saw, and of three cases at St. Luke's Hospital. Dr. H. G. Wetherill has furnished data of the only case at the Woman's Hospital. At Mercy Sanitarium no case has occurred among thirty-three nurses. In one nurse, aged 38 years, a widow, on whom Dr. Fleming operated for removal of the uterus and tubes, the appendix was found adherent and inflamed by contiguity, but this was in no proper sense a case of appendicitis from our point of view. But two years are covered in the records of the four hospitals last mentioned.

We have here, then, a total of 18 cases of appendicitis among the pupils of our five training schools, the total number of nurses during the time under consideration being 296. Thus a percentage of 6.08 have been operated on, while a considerable additional number have had mild attacks of the disease. Although the total number of nurses in all the hospitals is given, I make no pretense that the percentage of cases stated is an average for that number of nurses. The average number of nurses present at any one time in the five schools is 140, but constant changes take place in the personnel.

I think there can be no possible escape from the conviction, after a consideration of all that we have thus far presented, that appendicitis is extremely common in the pupils of training schools, and among trained nurses in general. It is of interest to study why so many cases occur, and why so many come to the operating table.

The average age of the eighteen nurses was 23½ years. They averaged to have been in training about 14 months at the time of operation. Six were operated on at once with the beginning of the first attack, one two weeks after the first attack, four on the outbreak of the second attack, one after the second attack, three at the beginning of the third attack, or a later one, and three after three or more attacks. Thus thirteen were operated on at the beginning of an attack, and five were interval operations.

In thirteen of the cases the usual appearances of chronic appendicitis were found, clubbed, bent or thickened organs, generally. Strictures were noted in four, concretions in five. Acute inflammation was superadded in all of these, excepting the five interval cases. Aucte inflammation was found alone in the remainder of the list, gangrene being present twice. One patient, whom I did not see, broke out with measles as she left the table, and the appendix showed much redness and swelling, leading the operators to consider it a case of eruptive disease manifested internally as well as externally. One case under Dr. Devlins' care, and operated on by Dr. Bagot, developed typhoid fever immediately after operation. It was one of those in which in the beginning it is impossible to state whether the disease is appendicitis or typhoid.[1]

Every case recovered with a practically perfect result. In one acute case, where the beginning was complicated by painful menstruation, operation was delayed until thirty-six hours had passed and gangrene was already present. I erred in underestimating the severity of this case, and we were anxious for a day or two because of the extent of the infection, although recovery was but little delayed.

I can only offer theories as to the cause of the frequency of this disease in nurses, and shall be ready to accept any new evidence brought forward.

Doubtless most pupils in training schools are on their feet vastly more than before entrance, for many come from the school or the home, where there is no such amount of standing and walking. Constipation is certainly almost the rule among the pupils and it may be a factor. A rather monotonous diet, complained of by nurses at times, may promote this trouble.

The stooping posture while at work in making beds, attending to and bathing patients, especially when using the tub bath for typhoid, is doubtless to be considered in the etiology of the disease. Traumatism of the already diseased appendix may occur here through action of the psoas muscle as easily as in riding the bicycle or other similar exercise; we recognize the occasional dependence of the disease in the male on some such exertion.

But the single greatest factor we have yet to mention, I believe. Doubtless many people in other walks of life have worse attacks than many of these for which the nurses were operated on, and recover, to go on for years, either immune or suffering from recurring attacks. The nurse, however, like the physician, on the alert for trouble in the right flank, recognizes the attack at once, realizes its danger, sees a physician at once, and, as in most of these cases, is operated on immediately rather than go through an attack of more or less doubtful outcome.

In my opinion, the results in these cases are as nearly ideal as we can hope to obtain, chiefly owing to early diagnosis and to prompt and skillful intervention.

I do not doubt the possibility of almost equally good results in any large series of cases, if all of the elements to be considered were under the control of the physician. If every case could be seen in the first few hours we should gain the first point. This will be impossible until the laity realize that abdominal pain, even though apparently trivial, should be the signal for calling the physician immediately. If he makes a prompt diagnosis and calls efficient surgical aid, we should gain the second point. In order to take full advantage of it, however, we must assume sufficient confidence on the part of the patient in her advisers to lead to the acceptance of early operation if advised.

I believe there is no way in which we may be of more use to those coming under our care than in keeping before them the tremendous advantage of early diagnosis, and if necessary, prompt operation in cases such as we have considered. The mortality rate could be practically wiped out if we could only have such favorable conditions as we find in the average training school for nurses.

1. See article by C. G. Cumston, "The Clinical Aspects and Differential Diagnosis of Appendicitis and Typhoid Fever," Amer. Jour. Med. Sci., May, 1905.

THE RELIEF OF UREMIC HEMIPLEGIA AND OTHER UREMIC STATES BY LOWERING INTRACRANIAL PRESSURE.

TEN CASES.

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In a previous communication[1] were published the results of lumbar puncture and drainage of the cerebrospinal canal as evidenced by three suggestive but eventually fatal cases. My conclusions, as stated at that time and based on the experience of these cases, were essentially as follows:

1. Probably several toxins exert an influence in uremia at different times and in different cases.

2. Other portions of the brain than the cortex are also affected by the causal influence in uremia.

3. Intracranial pressure is usually in evidence, either independently or in conjunction with toxic irritation and tissue destruction.

4. In cases in which the intracranial pressure is the main factor, lumbar puncture of itself may save life; it should constitute one of the routine measures in the treatment of uremia.

5. Transfusion of normal salt solution, except in cases presenting anuria or a markedly diminished secretion, is contraindicated.

6. Drainage of the spinal canal will not cure purely toxic cases.

Other workers in the Philadelphia Hospital at the time of the publication of the former paper were so discouraged with their unfortunate results as to frown on the procedure and to prevent its further employment in their wards. With this knowledge as a drawback my own first, partial, but highly satisfactory, results were

1. THE JOURNAL A. M. A., Oct. 8, 1904.

obtained. It is because I have gradually convinced myself that the experience of those who have failed to obtain successful results with lumbar puncture in uremia has been due to a series of unfavorable coincidences, and because I have since demonstrated with what seems to me certainty, and by means of an unusually rich series of cases, the value of the procedure, that I have ventured to place my results before the profession for criticism.

It is my intention in this paper to omit, at least in its beginning, all primary reference to any one toxin as a causative factor, assuming at once that a toxin or toxins are present in every case of uremia, whether playing a prominent part or filling a minor rôle.

That Conclusion 2, with regard to the involvement of portions of the brain other than the cortex, has been amply proved will also be taken for granted: (1) because of clinical evidence cited in the previous paper; (2) on the ground of the autopsy findings in the brain in Case 3 of the previous series; (3) based also on Weisenberg's discovery of pathologic changes in the brain tissue even when macroscopic lesions were absent; (4) and, still more positively, on the postmortem dilatation of the lateral ventricles noted in every case of uremia that has come to autopsy following the antemortem removal of excessive quantities of cerebrospinal fluid.

There remain for active discussion, however, three important considerations:

1. To what extent does intracranial pressure influence the occasional case which responds favorably to spinal drainage?

2. To what extent does it influence the average uremia?

3. What influence, if any, will relief of intracranial and intravascular tension exert on an assumed dominant toxemia?

Before proceeding to the discussion of these questions it will be interesting and instructive to outline briefly the clinical pictures on which this subsequent study has rested, constituting, as the cases do, two instances of uremic coma with convulsions, one of simple uremic coma, two of uremic hemiplegia, convulsions and amaurosis, and one of severe uremic asthma. Of these cases, two patients (representing three instances of uremic seizure treated by spinal drainage) are still alive at the time of writing. Only one patient considered in this paper died before a sufficient interval had elapsed to demonstrate the value of the measure. Nearly all promptly recovered, at least for the time being, from the uremic attack.

CASE 1.—J. C., white, male, aged 82; an instance of uremic coma and convulsions, was admitted to the wards of the Philadelphia Hospital on Oct. 5, 1904.

Examination.—He was greatly exhausted, and showed considerable dyspnea due to a marked cardiac dilatation and to congestion of both pulmonary bases. The radial and temporal arteries were calcified and beaded, there was marked accentuation and a metallic clang of the second aortic sound, and at the apex there was a systolic murmur, presumably of a relative mitral insufficiency. The legs, penis, and scrotum were markedly edematous. The urine contained large quantities of albumin, and many hyalin and hyalogranular casts.

Course of the Disease.—A few days after admission, his edema had entirely disappeared, but he began to complain of headaches, vomited nearly all his food, his breath was decidedly urinous, and coma gradually supervened. On the same day there occurred a general uremic convulsion, and two attempts at venesection proved unsuccessful, the veins collapsing as soon as opened.

Treatment and Result.—Lumbar puncture was performed, the fluid spurting nearly an inch from the cannula. During the operation, a second general convulsion occurred. Slightly over two ounces of clear fluid was withdrawn, the flow then ceasing. At once the pulse became less angry, and the second aortic sound became less active and less metallic. Within a brief half hour the patient was fully conscious and talking to the nurse in attendance. He knew nothing of the lumbar puncture. When seen by me on the following morning, his mind was clear, the headache was gone, the urinous odor had disappeared from his breath, and he expressed himself as feeling "pretty well." There were no further convulsions, no return of the coma, and indeed no sign suggestive of uremia. The urine gradually showed less albumin and less microscopic sediment.

Subsequent History.—On Nov. 7, 1904, he sat up in a chair, but almost collapsed, and was replaced in bed. From that day on, his physical failure was gradual, though his mind was invariably clear. He lived until November 30, fifty-six days after the uremic attack, and then died of asthenia.

Autopsy Findings.—Arteries were found to be sclerotic and calcareous over the entire body. There was marked emphysema of the lungs, covering a large dilatation of the ascending aorta (not aneurismal). The cardiac valves were fairly normal; there was no gross valvular lesion, but there was marked cardiac dilatation. Both kidneys showed a high grade interstitial nephritis, and a subacute inflammation, with considerable fatty change. The brain externally appeared normal. Both lateral ventricles were enormously distended, so as to hold easily an ounce of fluid each, though containing at the time only about one dram. No hemorrhage was found, and no gross destructive lesion present. The brain tissue did not appear to be distinctly edematous.

CASE 2.—T. F. M., white, male, aged 36, an instance of uremic coma and convulsions, was admitted to the Philadelphia Hospital on Nov. 6, 1904, from the police patrol.

Examination.—He was completely comatose when admitted. His urine, drawn by catheter, contained nearly 50 per cent. albumin, by volume, and many granular casts. His pupils were unequal, the right larger than the left, but both were dilated. The respiration was stertorous.

Course of the Disease.—He could be aroused, but relapsed at once into stupor. He was purged and given a hot pack, and following the latter his temperature rose to 104° F. He then had two severe general convulsions at short intervals, and later a third. Nystagmus appeared, and coma became profound.

Treatment and Result.—Lumbar puncture was then performed by the resident physician, and about one ounce of clear cerebrospinal fluid was withdrawn. Two hours later, the patient could be easily aroused, and seemed markedly improved. Venesection was then done, six ounces of blood being extracted in the hope of further improvement. Unfortunately, as it afterward appeared, one and one-half pints of normal salt solution were introduced into a vein, and within a half hour three convulsions had occurred, and again profound coma appeared. Lumbar puncture was again performed, and again over an ounce of cerebrospinal fluid was withdrawn, although the canal had been emptied not four hours previously. There was no improvement, on this occasion, however, and the patient died before morning. An autopsy was not allowed.

CASE 3.—E. McD., white, male, aged 38, an instance of uremic coma, was admitted to the wards of the Philadelphia Hospital on Oct. 28, 1904, following a debauch.

Examination.—There was partial coma, which increased during the next three days, though at no time was it possible to rouse him by questions. The arteries were hard and fibrous, the second aortic sound was loud and metallic, and the heart was much dilated. The urine contained large quantities of albumin, and many casts of all forms. The breath was distinctly urinous.

Treatment and Result.—On Nov. 2, 1904, lumbar puncture was performed, the fluid spurting from the needle, and about an ounce being obtained. There was absolutely no improve-

ment in the condition, and on the following day 20 ounces of blood were removed by venesection. Improvement was extremely slight, if present at all, and consciousness was never regained. The patient rapidly emaciated and died on Nov. 11, 1904. Autopsy was not permitted.

CASE 4.—M. W., colored, female, aged 52, a case of uremic hemiplegia, convulsions, and amaurosis, was admitted to the Philadelphia Hospital on Nov. 28, 1904.

History.—Several months previously she had had an attack in which she fell and was unconscious "for a few minutes." She had then recovered completely. Her hands and feet had never swollen, but she had been subject to headache. On the day of her admission she had fallen again owing to sudden unconsciousness. The patient knew nothing of these falls, and stated that she had felt merely a numb feeling in her left arm for about an hour on the morning of her last attack (the present one). On awaking from her stupor she was in the hospital convalescent, with a dim recollection of the pain of my incision prior to the lumbar puncture.

Examination.—On admission, the patient was profoundly comatose, with complete paralysis of the left side of the body. Both pupils were contracted, the peripheral arteries were hard and fibrous (the radials beaded), the pulse of high tension, and the second aortic sound characteristically accentuated and metallic. The heart was greatly dilated. The lungs appeared negative. There was no edema, even the pretibial tissues showing no sign of pitting on pressure.

Treatment and Result.—Lumbar puncture was performed. Five drams of cerebrospinal fluid flowed from the cannula, at first with force, and later dripping slowly as in health. At once the patient seemed brighter mentally, and an hour later moved both the arm and leg freely, and discussed "what had been done to her back" intelligently and clearly. She could see almost nothing, however, except the gaslight. On the following morning the paralysis had entirely disappeared, and she was able to see clearly with her spectacles as usual. The pulse at this time was slow and full and the second aortic sound much less angry and metallic than previously. Headache was completely gone. On Dec. 7, 1904, she sat out of bed, and two days later was walking freely around the ward, feeling strong and well.

CASE 5.—Same patient as in Case 4, an instance of recurrent hemiplegia and convulsions.

Course of the Disease.—The patient remained in the Philadelphia Hospital, and was free from symptoms until December 31, when she described a numb feeling in her left arm and side, headache, and dimness of vision. The urine contained a trace of albumin, and showed a constantly low specific gravity. The pulse was of high tension, and the second aortic sound angry and metallic in its accentuation. She was placed in bed, and the next morning felt well and was again around the ward. On January 3, she again felt numbness in her left arm, had severe headache and about 10 a. m. noticed her left hand and fingers twitching. She was placed in bed and at 12 o'clock, noon, the twitching had increased to violent rhythmic movements of the left hand and soon of the left arm, later of the left side of the face, and then involving the left leg, until the convulsive movements included the whole left side. Consciousness was preserved, and the patient stated that she had severe headache, but that her eyesight was clear. At 1:30 p. m. there was complete hemiplegia of the left side, though uncontrollable convulsive movements were almost constant.

Treatment and Result.—Lumbar puncture was performed with the only needle obtainable, of a very small, unsatisfactory size, and about 10 c.c. of fluid withdrawn, but the needle becoming plugged no more could be obtained. The convulsion became general about 3 p. m., and at 4:30 lumbar puncture was done with a small trocar and cannula, and considerably over one ounce of cerebrospinal fluid was withdrawn. The latter was blood tinged. During and prior to the operation the convulsive movements became very active. When asked to raise her arms and legs the patient responded with her right limbs, but failed completely with the left. Sensation was diminished on the hemiplegic side. The reflexes were almost absent on the same side. The pupils were contracted and equal.

While the fluid was still flowing from the cannula the patient suddenly relaxed and the convulsive movements disappeared, to recur once or twice very slightly, and then to disappear finally within five minutes of the withdrawal of the cannula. The headache was relieved to a great extent at once during this attack; the eyesight at no time was impaired. One-half hour after the lumbar puncture the hemiplegia was still complete. Two hours later (7 p. m.), the patient raised her left hand, and at 10 p. m. the entire left side was under control. Her convalesence from that time was steady.

Subsequent History.—On the evening of January 6 (three days later), the patient suddenly went into a general epileptiform convulsion and was completely unconscious during the convulsive seizure, after which her mind gradually cleared. There was no paralysis. One hour later, a second convulsion followed. The spinal canal was punctured, but no fluid could be withdrawn, although the cannula was repeatedly extracted and reinserted in the canal. In the emergency bleeding was resorted to. The veins collapsed as fast as they were opened, and finally the radial artery was incised and 23.5 ounces of blood were removed. Within an hour, the patient had a third convulsion, and from that time for twelve hours was in a state of constant delirium. The radial pulse which had been obliterated was faintly palpable on the succeeding day (20 hours later); the left radial was of a markedly high tension. With the idea that, having relieved the fluid pressure, the remaining uremia including the high pulse tension must be purely toxic, aconite was given in 5-drop and later 10-drop doses every two hours, and with gradually favorable results, the patient relaxing and finally returning to a state of rest. The high tension of the radial pulse gave way to a normal condition, and the second aortic sound lost much of its metallic quality and accentuation.[2]

CASE 6.—W. E., white, male, aged 44; an instance of uremic asthma; was admitted to Philadelphia Hospital on July 7, 1904, suffering from rheumatism of the toe and thumb.

Course of the Disease.—As the rheumatism subsided, his legs began to swell. His arteries were stiff and fibrous, his heart dilated, his second aortic sound metallic and loud, and his urine contained considerable albumin and many hyalin and granular casts. He remained in bed from July to October, 1904, and then began to suffer from severe dyspnea, especially at night. He also has now to rise several times during the night to urinate. The dyspnea soon developed into severe attacks of asthma, his face became puffy and swollen, as did also his lumbar region, his buttocks, and gradually his legs. Nitroglycerin and caffein were used continuously. When at last the asthmatic attacks made their appearance every few hours it became a matter of almost certainty that they were due to uremic poisoning or to uremic intracranial tension.

Treatment and Result.—On Oct. 3, 1904, venesection was done by the resident physician, and 10 ounces of blood were removed, with marked temporary relief from the dyspnea. The asthma recurred, however, and on October 13 venesection was done on the other arm, the same amount of blood being withdrawn and temporary improvement again following. The radial pulse disappeared on the side of the operation for about four days following the latter, and then suddenly reappeared. His legs, buttocks, and face were greatly distended with fluid, and on elevating his legs his abdomen showed distinct fluctuation, which disappeared when both the body and legs were finally lowered. About October 18, the asthmatic seizures recurred, and became very severe. Lumbar puncture was done on October 20, the cerebrospinal fluid spurting out until one and three-quarters ounces were obtained. Immediate relief was experienced, and from this time until November 8 (18 days), he was free from distress, and then had a brief attack which proved to be his last up to the present time. The edema gradually disappeared until, on December 2, there was

2. This patient recovered entirely and returned home feeling well. As long as she was under observation, her constant tendency to a high-tension pulse was controlled by the intermittent use of aconite.

no pitting on pressure, even over the pretibial area. The patient was then dressed and out of bed for the first time in six months. Two days later he returned to bed with an acute attack of rheumatic inflammation of the ankle joint, but with no indication of uremic or other renal embarrassment. On December 26 there was a protracted convulsive movement of his arms and legs, lasting for three-quarters of an hour and disappearing as suddenly as it occurred. Consciousness was preserved throughout the attack, whatever its doubtful nature may have been. A definite statement certainly can not be made as to whether it was or was not uremic, though, as there was neither chill nor fever, and the pulse remained normal, the patient conversing with the nurse and the resident physician throughout the seizure, I have been inclined to consider it hysteric in character. Since that time bronchopneumonia and pleurisy have successively complicated the nephritis, but the uremic symptoms have failed to reappear.*

CASE 7.—E. J., white, male, aged 68; a case of uremic coma and delirium; was admitted to the Philadelphia Hospital on Dec. 27, 1904, with ruptured cardiac compensation, dyspnea, and marked edema of the extremities.

Examination.—His lung showed a small area of bronchopneumonia. The urine contained large quantities of albumin and many granular casts of all forms.

Course of the Disease.—On Jan. 4, 1905, the patient's breath was distinctly urinous, his mind was not clear, the temperature rose from subnormal to 101 F., the respiratory rate from normal to 40, and the pulse from 50 to 120. Delirium soon became prominent, restraint in bed being necessary. On Jan. 19, 1905, the condition was somewhat improved, though there was the same odor of urine on the breath, and the mind was by no means clear.

Treatment and Result.—Lumbar puncture was performed and one and one-half ounces of clear cerebrospinal fluid was obtained. The temperature fell within three hours from 101 F. to subnormal, the pulse from 110 to 50 and then to 80, where it remained; the respiratory rate became 20. Within three hours the patient answered questions intelligently, and was fully conscious. On January 7 delirium returned, with incontinence of feces and urine, and death ensued during the night.

Autopsy.—The autopsy showed: Cerebral edema, both lateral ventricles appeared dilated; chronic adhesive pleurisy, hydrothorax, chronic interstitial nephritis, acute pyelitis, cystitis; urethritis, and red atrophy of the liver.

SYNOPSIS OF CASES.

In a brief backward glance at the foregoing cases we may frame the following synopsis:

Case 1: Uremic coma and convulsions in man of 82. Lumbar puncture and 2 ounces of fluid withdrawn. Recovery. Death 56 days later. Autopsy: greatly dilated lateral ventricles.

Case 2: Uremic coma and convulsions in man of 36. Lumbar puncture; one ounce of fluid withdrawn. Improvement. Transfusion of salt solution, followed at once by relapse. Second lumbar puncture four hours after first; again one ounce of fluid withdrawn. No improvement; death.

Case 3: Uremic coma in man of 38. Lumbar puncture; one ounce of fluid obtained. No improvement. Venesection (20 oz.), with slight temporary improvement. Death.

Case 4: Uremic hemiplegia, convulsions and amaurosis in a woman of 52. Lumbar puncture; five drams withdrawn, with prompt disappearance of the hemiplegia and of the amaurosis. Recovery.

Case 5: Convalescent uremic hemiplegia. One month later a recurrence of the convulsions and left-sided hemiplegia. Lumbar puncture, one and one-third ounces of fluid removed. Immediate cessation of the convulsive seizure and disappearance of the hemiplegia within three hours.

Case 6: Uremic asthma. (1) Venesection, (2) venesection; improvement following both, then relapse. Lumbar puncture (one and three-quarters ounces), with almost complete and finally permanent relief. Recovery.

Case 7: Uremic coma and delirium. Lumbar puncture, followed within two hours by a return to consciousness. Recurrence of condition and death two days later.

In order to render the following discussion as practical as possible, the three questions already proposed may be cited and answered seriatim.

I. TO WHAT EXTENT DOES INTRACRANIAL PRESSURE INFLUENCE THE OCCASIONAL CASE OF UREMIA WHICH RESPONDS TO SPINAL DRAINAGE?

The answer to this question may be based on the following evidence offered (a) by the physical signs before and after lumbar puncture, (b) by the influence of the latter on uremic coma (complete or partial), (c) by its influence on the uremic convulsion, (d) by its influence on uremic monoplegia or hemiplegia, (e) by its influence on uremic asthma, (f) by its influence on uremic amaurosis.

Among the physical signs indicative of intracranial and intravascular pressure are the coma, the pupillary abnormalities, the hemiplegia (temporary), the pulse of hypertension, the angrily accentuated second aortic sound, and the convulsive movements.

Without considering these in detail, it may be assumed, as a matter of common knowledge, that all the foregoing may be caused by excessive intracranial pressure. Not only have Gower's studies shown that a pressure of 130 mm. exerted on the brain of a dog is sufficient to cause coma, but many other clinical examples bear witness to the fact that one form and another of intracranial pressure—cyst, tumor, bony outgrowth, cicatrix—may cause, singly or in combination, all the remaining phenomena which I have mentioned.

The converse is equally well proven by the cases cited in this paper, viz., that these phenomena disappear, as a rule, on relief of intracerebrospinal pressure. In every instance in which improvement has been noted, the coma has been at least partially, and usually completely, relieved with such promptness as to leave no doubt regarding the causal influence; hemiplegia, when present, has been caused to disappear, monoplegia (see former article) likewise, the pulse has become softer and even normal, amaurosis has disappeared, the aortic second sound has become less accentuated and less metallic, the convulsive movements have (even in eventually unfavorable cases) ceased, and at times before the flow of cerebrospinal fluid had stopped.

With special reference to the coma, it will be observed that in two of the series of three cases reported in my former communication, and in five out of the seven cases in the present series, the coma disappeared almost immediately (within two hours) after the withdrawal of evidently overlarge quantities of cerebrospinal fluid. In Case 1, of the former series, consciousness was never fully restored, but within a few minutes mental clearing was apparent. In Case 2, consciousness was completely restored within a few hours of the operation. In Case 3, consciousness became almost complete after each of three daily lumbar punctures. In Case 1, of the present series, consciousness was complete within

* This patient is now out of bed and preparing to return to his home, free from cardiac and respiratory distress.

a half-hour from a previous deep coma; the patient in Case 2, also previously in deep coma, could be aroused within two hours, but following veneclysis relapsed and died; in Case 3 there was no improvement; in Case 4 the patient regained consciousness within an hour; in Case 5 the patient did not lose consciousness; in Case 6 the patient did not lose consciousness; in Case 7 the patient regained complete consciousness in about one and one-half hours. Thus, of ten cases of uremia, eight patients were comatose and six regained consciousness shortly after spinal drainage.

Three patients (Case 3 of the first series and Cases 4 and 5 of the present) exhibited paralysis, the former an oculomotor palsy and the latter two complete hemiplegia. In all these instances the paralysis was relieved, and in the hemiplegic woman the change was remarkable—from a complete left-sided hemiplegia to a free use and control of her entire body within 12 hours, and to a partial use at once.

Of the ten cases included in the two series, six patients suffered from convulsive movements; in five instances general, and in two (one patient) limited to the hemiplegic side. In every case in which spinal drainage was instituted the convulsions terminated with the withdrawal of the cerebrospinal fluid, and in only one case did they recur within several weeks of the operation. In Case 5 the convulsions were at one time general, following two attacks of unilateral convulsions and hemiplegia.

Of the ten cases, only one gave certain evidence of true amaurosis, and this disappeared within a few hours after the lumbar puncture. One case showed typical uremic asthma as its most prominent feature, the breath at the same time being distinctly urinous. The asthmatic attacks were relieved twice by bleeding, and the third time by spinal drainage, and since the latter have not recurred.

TREATMENT EMPLOYED.

In all of the foregoing cases, the routine treatment consisted of free purging, drainage of the cerebrospinal canal, and occasionally bleeding. Only those cases in which lumbar puncture formed the only treatment at that particular time are, however, considered in this paper. Two patients were transfused with normal salt solution and both died; one of these showed improvement until the salt solution was introduced, then promptly relapsed into coma and convulsions; death ensued. The hot pack has invariably appeared to me to cause high temperature and a weak running pulse, and in no case has seemed to be certainly beneficial.

In Cases 1, 4, 5 and 7 of the present series, all instances of profound coma, convulsions, and in one instance hemiplegia, absolutely no other measure was employed than drainage of the cerebrospinal canal.

Spinal drainage, bleeding and over-free purging seemed to act similarly in their respective order of promptness and efficiency. The similarity of the action of lumbar puncture and venesection was most evident in Case 6 (renal asthma). Aconite appeared to exert a decided and invaluable influence in counteracting the uremic, adrenalin-like toxin, thus reducing intravascular hypertension when fluid pressure had been dissipated in vain (Case 5).

It would appear to be a fair inference from the foregoing that in all except Case 3 (of the present series), namely, in nine of ten instances, relief of intracranial pressure effectually relieved the symptom complex known as uremia; and similarly it would, on the same grounds, seem reasonable to conclude that intracranial overpressure, whether due to toxemia or whatever cause, was at least the dominant factor in causing the uremic picture in these particular instances. In Case 6 cerebrospinal pressure seemed at first to be the only factor, and later appeared to have no hand in the affair, which then suggested a toxic influence only.

II. TO WHAT DEGREE DOES INTRACEREBROSPINAL PRESSURE INFLUENCE THE AVERAGE CASE OF UREMIA?

In order to arrive at any conclusion, it becomes necessary to analyze the cases of uremia reported in medical literature to the present date which have been treated in the main or solely by lumbar puncture and drainage of the spinal canal. Of my own ten cases, all but one showed marked improvement within the two hours following the withdrawal of the fluid, and Cases 1 and 5 of the present series showed almost instantaneous return to consciousness and quiet. In Case 4, the severe headache suddenly disappeared. Of these ten cases, five improved so far as to be entirely free from uremic symptoms. Five died too soon after the operation to warrant the statement that final recovery from uremia took place, in spite of the return to consciousness and the cessation of convulsive movements.

While a sufficient number of instances of lumbar puncture in uremia has been recorded up to date to justify an estimate of the value of the procedure, the list is by no means extensive. McVail has reported two cases of uremic coma and convulsions, in both of which recovery took place for the time being at least. Seiffert has also reported several instances of uremic convulsions and coma in the course of scarlatina in which prompt recovery followed lumbar puncture. Hand has recently described a case of uremia in typhoid fever, in a child, responding promptly to spinal drainage.

During the last three years, there have been many instances of intracranial hypertension other than those of uremia in which lumbar puncture has been employed, which illustrate the same principle. In many, the symptoms were identical with those of the uremic state. Among them the following are most suggestive: Huber[3] has relieved otitis serous meningitis, also the cerebrospinal form of typhoid fever, and true cerebrospinal meningitis, in three different patients by lumbar puncture. Beky[4] has permanently cured acute hydrocephalus by repeated (fifteen and upward) and persistent tappings and withdrawal of the cerebrospinal fluid. He notes that Concetti has cured another patient by tapping fifty times within two years and with capital final results. Many observers, among them Warrington,[5] have drained the spinal canal in meningitis with prompt return of the patient to consciousness, and with relief from other symptoms. Lumbar puncture has also been used in bronchopulmonary lesions, and Nobecourt and Voisin[6] have reported its use in thirty-one such instances in children. In seven of these, there were no meningeal phenomena, while in 24 it was marked. Of the 24 meningeal cases only four patients survived, the symptoms varying from mere stiffness of the neck to convulsions. In the seven cases without meningeal symptoms the cerebrospinal fluid was clear and usually sterile. In the meningeal series it was

3. Arch. Ped., January, 1904.
4. Jahr. f. Kinderheilk., February, 1903.
5. Pediatrics, February, 1903.
6. Revue Mens. des Mal. de l'Enf. xxi, 1903.

turbid, contained many polynuclear leucocytes and bacteria.

Babinski[7] reports an interesting case of meningitis in a young girl of 12 years in whom the fluid obtained by lumbar puncture spurted out in a turbid stream. During the month, several subsequent punctures gave the same result, and at last recovery ensued.

S. O. Golden[8] records a case of meningitis with convulsions in a child, with protrusion of the fontanelles, the latter subsiding at once on draining the fluid from the spinal canal.

Syphilitic cephalalgia has also been relieved in this manner by Millan [9] in Fournier's service; and Rochard[10] has restored consciousness promptly in fracture of the skull by draining in the same fashion.

Herbert Rhodes[11] has called attention to the prompt relief from pain following lumbar puncture in a case of gliosarcoma of the optic thalamus, also to the relief of coma in a case of postbasal meningitis. Hodskins and Norton have published a most interesting series of cases of status epilepticus treated by lumbar puncture, in six of which there was positive improvement and recovery in four cases, attended by marked lowering of the blood pressure.

Each and all of these cases demonstrate the fact that when cerebrospinal fluid is present in excess, and in quantities sufficient to exert intracranial overpressure, the symptoms due to hypertension are promptly relieved by drainage following lumbar puncture. In all but one of my own ten cases, and in all of the instances of lumbar puncture in uremia reported by other observers there has been the same prompt relief from pressure symptoms whether the case eventually terminated in recovery or proved fatal. In all the cases observed by me, there was a marked change not only in the volume, but in the rate and force of the radial and apical pulse, and frequently a corresponding fall in the temperature and respiratory rate. I shall deal in a subsequent paper with the actual fall in blood pressure resulting from drainage of the spinal canal. When the fluid spurted from the needle, improvement was almost invariably (with one exception) prompt and usually permanent. If it simply dropped as if reluctant to flow, the improvement was much less positive. The average amount of cerebrospinal fluid obtained was considerably over an ounce, and in one case (1) over two ounces was obtained.

In all my cases except 3 and 5 (in the third attack) the result of spinal drainage was gratifying. In Case 3 absolutely no improvement was noted in spite of the fact that an ounce of fluid was withdrawn. One such case goes far toward proving that occasionally the toxemia or the local influence of the toxin is so profound as to dominate the symptom complex, in which event lumbar puncture is futile. Such a case can be isolated from the average only by the failure of spinal drainage and bleeding, or in the event of a dry condition of the canal as in Case 5 in the third attack. The great majority of cases will respond at least partially and many completely to lumbar puncture; and many others will respond to this procedure when reinforced by bleeding, free purging, diuresis, and the use of aconite. It would seem warranted to say that lumbar puncture should be employed in every case of uremia, and should be looked on as one of the most important features of the routine treatment.

III. IN WHAT MANNER DOES DRAINAGE OF THE CEREBROSPINAL CANAL EXERT AN INFLUENCE ON INTRACRANIAL PRESSURE; AND WHAT OTHER PROCEDURES MAY EXERT A SIMILAR INFLUENCE?

It seems certain from the autopsies in Cases 3 of my former series, and 1 and 7 of the present series, that in certain instances of uremia, if not all, the brain tissue suffers from fluid pressure. This affects the parenchyma itself, distends the ventricles and the spinal canal, and in Case 3 of the former report led to the formation of a cystic cavity in the brain substance leading from the posterior horn of the left lateral ventricle.

Drainage of the cerebrospinal canal indubitably relieves the excess of fluid, as is proved both by the appearance of dilatation of the ventricles at the autopsy and by the repeated dry tapping in Case 5, following an earlier puncture, which showed an excess of fluid.[12]

The prompt relief from clinical symptoms furnishes still more satisfactory proof of this point. It also goes to show that in certain instances the injury to the cortical motor centers is only temporary, and is independent of the occasional destruction of cellular tissue described by Weisenberg as occurring in uremia and referred to in my previous communication. That wholesale destruction may occur is evidenced by this very cyst formation, even more certainly than by microscopic study. I consider the question still *sub judice* whether this tissue change should be credited altogether to the action of a toxin, as held by Weisenberg, or whether perhaps direct pressure may not have an equal or even greater influence in certain instances.

The mechanism seems to be somewhat as follows: Owing both to the toxemia and to the arteriosclerosis, hypertension of the arterial and venous circulation prevails, and as a consequence an increasing hypertension of the cerebral blood and lymph channels. Possibly the toxin carried to the brain by the blood vessels exerts a local action also on the various motor centers. Thus, we find working side by side a toxin and fluid pressure, the latter often in the form of edema, and both capable of producing a similar series of brain symptoms, and both acting, many times, in conjunction.

Possibly the excess of fluid is directly due to the influence of the toxin on the brain tissue or on the meninges, or in any event to strictly local influences. Certain it is that fluid pressure occurs most frequently in persons who are entirely free from general edema or effusion other than that in the cerebrospinal cavity. The toxin, therefore, may be the predominant factor, or, as more frequently occurs, if we can judge from a series of cases like my own, the excess of fluid within the cranium may of itself produce the uremic picture. Whether the uremic picture is due to the one or the other is of little clinical consequence, provided the withdrawal of the fluid relieves the symptoms. The very relief of such symptoms as headache, convulsions, amaurosis, and coma, by mere drainage of the cerebrospinal canal, forces us to the conclusion that portions of the brain are sometimes encroached on and that sometimes there is even an isolated involvement of one or more motor centers, which is most easily and ration-

7. La Revue Med. No. 435, 1902, p. 713.
8. Amer. Med., Dec. 27, 1902.
9. Semaine Med., June, 1902.
10. Presse Med., No. 35, 1902.
11. Brit. Med. Jour., July 11, 1903.

12. This occurrence should not lead to the conclusion that the fluid does not as a rule recollect. It usually does; in this case it did not.

ally explained by the assumption of a localized collection of fluid or edema, which in favorable cases disappears under the influence of lumbar puncture. Free drainage of the canal depletes at once the ventricles, the brain tissue, and ultimately also the venous and lymph channels. Free bleeding must accomplish the same result by working from the opposite direction, i. e., through the circulation, and secondarily through such a relief of congestive pressure. The latter is, of course, a much more indirect, a slower, and therefore less efficacious process. Bleeding, free diuresis and purging and sweating act in the same manner, by relieving the general circulatory hypertension, and, indirectly, by relieving intracranial pressure. Aconite seems to act in a similar manner by depressing the cardiac vigor and thus diminishing the amount of blood forced with each systole into the already overful brain, and by dilating or relaxing the vessel walls. Nitroglycerin dilates the peripheral vessels to accommodate the excess of blood, but, unfortunately, it also whips up the heart into new exertions, so as to further increase the systolic output.

Of all these adjuvant measures free bleeding, from a vein or artery, seems to be the most rational procedure after lumbar puncture, and only second in importance to the direct drainage of the tissues of the central nervous system.

Thus it seems fair to assume that cerebrospinal drainage relieves the symptoms of uremia by directly relieving the excess of fluid in the brain cavities and brain tissue, and that in certain cases the fluid must be repeatedly removed until it ceases to reform and recollect within the cranium.

IV. WHAT INFLUENCE, IF ANY, WILL RELIEF OF INTRACRANIAL HYPERTENSION EXERT ON A DOMINANT UREMIC TOXEMIA?

The discussion of this question must rest on the assumption that (1) a toxin or toxins are actually at work in uremia; (2) that the vascular hypertension is the direct result of a toxemia; and (3) that the cerebrospinal overpressure which characterizes certain cases is due to the excess of cerebrospinal fluid manufactured as a direct outcome and result of the toxic state.

If we admit these theories to be founded on a fair basis of probability it is easy to proceed a step further and to assume that by relief of cerebrospinal tension, which itself is a result of toxic irritation, we neutralize and gradually lessen the influence of the toxin, which may exhaust itself in this manner in vain, the spinal drainage serving the rôle of safety valve or exhaust. There is also the possibility, though nothing more, that a significant amount of toxin is abstracted with the cerebrospinal fluid, and also by bleeding, and that in this way the amount of toxin is directly reduced. The experiments of Hughes and Carter[13] would seem to indicate that the blood serum of uremic human beings and less so that of the healthy human organism is toxic at least for dogs. Our own animal experiments[1] seem to demonstrate conclusively that the cerebrospinal fluid of uremic persons contains no principle deleterious to the smaller animals. My feeling at the present time is that in all cases of uremia both a toxin (or toxins) and intracranial pressure are at work, and that relief from either must to that degree enable the patient to withstand the assaults of the other.

13. Boylston Prize Essay, 1893.

TRANSFUSION OF NORMAL SALT SOLUTION IN UREMIA.

I have already emphasized my conviction that transfusion of normal salt solution in uremia is contrary to what we know to be beneficial to the state of the individual at the time. Even when there is only the likelihood and not the certainty of intracranial pressure, the result of introducing any liquids, and especially salt solutions, into the circulation will be to raise the pressure still further.

If we first bleed to abstract the toxin and to reduce pressure, and then transfuse in the hope of diluting the toxin (a theory at one time in prime favor) we at once restore one of the conditions most active in producing the symptom-complex of uremia, namely, intravascular and intracranial pressure. A striking demonstration of the truth of this assertion was obtained in Case 2 (this series), which showed decided improvement following the spinal drainage. The resident physician then extracted a small quantity of blood and introduced in its place a considerable quantity of normal salt solution. This procedure was promptly followed by convulsive seizures and coma, and the second lumbar puncture obtained as much cerebrospinal fluid as the first, although the canal had been drained dry not over three hours before. Novi has produced the complete picture of uremia in dogs by the injection of a 10 per cent. solution of common salt solution into the blood stream, until the latter attained a concentration twice that of the normal. Landois has produced "coma and convulsions by simply applying a sodium chlorid solution to the surface of the cerebral cortex. As the substance was absorbed the attacks grew slighter, and perfect recovery at times ensued."[14]

These facts lead me to the conclsuion that no good end can be served and that much ill may be accomplished by venesclysis in uremia, while its opposite, free depletion, is an ideal procedure from every point of view.

METHOD AND INDICATIONS FOR LUMBAR PUNCTURE.

In all my cases I have followed a method of procedure founded partially on the technic employed by others and partly on the difficulties experienced in several of my first cases. A frequent cause of failure to attain the cerebrospinal canal is the employment of an instrument that is too short to reach its destination. Another source of difficulty lies in the fact that a needle is commonly used the lumen of which can not be cleared while *in situ*; and, finally, most cases of failure are noted in subjects with a thick adipose or muscular layer over the spinal column in which the spinous processes are obscured or lost, as is also considerable of the needle's length. I used in my second case and still constantly employ a small trocar and cannula, the latter nearly 8 cm. in length, and its lumen measuring 1.5 mm. This instrument was resorted to owing to the fact that the small needle used in the first operation repeatedly became clogged in its passage through the cartilage and in this case more than once failed to reach the canal.

When the tissues overlying the vertebral column are excessive I also make a small incision over the upper lumbar vertebræ large enough for the insertion of the forefinger. With the patient in the left lateral position, his knees approximating his chin as nearly as possible, I then introduce the trocar and cannula between the second and third or between the third and fourth lumbar

14. Quoted from previous communication.

vertebræ. Klein recommends the third and fourth interspaces, and publishes an illustrative series of diagrams showing the relative positions of the vertebræ in the cadaver. The instrument passes along the finger, then downward and slightly outward beside the spinous process, feeling for the yielding of the cartilage. The feel as the trocar leaves the bone and enters the cartilage is unmistakable, and as the needle can not penetrate any other structures so long as it keeps fairly close to the spinous process, it is probable that the first yielding surface is the sought-for intervertebral disc.

Ossipow[15] has pointed out the various dangers of the otherwise very simple operation, but with cleanliness and care in the presence of undoubted uremia there should be no time lost in proceeding to the operation. Fatal meningitis has rarely been caused where none existed before. Mathes,[16] and Furbringer, Kronig, and Lichtheim have all reported cases in which death followed the puncture. The latter observers withdrew at times from 100 to 150 c.c., reducing the intraspinal pressure from 420 to 180 mm. of mercury. Millan[17] cites the case of a young woman punctured for chronic headaches, in whom extremely severe headache followed the operation, with vertigo, nausea and vomiting. In contrast to such occurrences, I must cite the present series of cases, in each of which relief, not aggravation, of the symptoms was the result.

I have obtained my best results in cases in which the fluid spurted from the cannula. In some of these the serum was clear and in some bloody; thus in all the present series of cases the fluid was clear, except one in which blood (which promptly coagulated and probably originated in a punctured vessel) and serum flowed from the cannula together. This case, however, showed a most prompt and gratifying result and the patient is still alive as evidence of the success of the treatment.

I have also obtained clear and again bloody fluid from cases which proved afterward to be fatal. A syringe pump is never necessary, as the fluid if present in excessive quantity will force its way out of the tube as soon as the latter enters the canal; and I incline to the belief that many of the unfortunate results have been due to the use of the syringe. On the other hand, it is my belief that all cerebrospinal fluid should be withdrawn, notwithstanding Ossipow's conclusion that hemorrhage into the brain and cord is likely to occur after the withdrawal of considerable quantities of cerebrospinal fluid. I have seen no unfortunate results attributable to the operation in any of my cases and in some I have allowed the wound to drain for several days, to obviate the necessity of repeating the puncture. In one case I drained the cerebrospinal canal for more than three days with excellent results, the fluid escaping in such profusion as to keep a thick gauze dressing and the nightclothes constantly moist. Of Seiffert's cases, there were two in which he did repeated lumbar puncture with resulting recovery. I have already cited Boky's, Concetti's, and my own cases in which repeated punctures were performed with final benefit to the patient. Occasionally the cerebrospinal fluid is bloody, and sometimes it flows like thick blood. Normally it is thin and clear. When viscid the fluid may take its character from an admixture of blood from torn vessels outside the canal, or from vessels in the dura mater, or in the pia mater. If the latter is the source, the fluid should become clear on withdrawing the cannula a short distance. Blood from a vessel will also promptly coagulate in the air under ordinary circumstances; blood from the spinal canal will not, owing to thorough mixture with the cerebrospinal fluid. If the ruptured vessel is in the dura mater a little deeper insertion into the canal will clear it of contact with the bleeding surface. If a trocar and cannula be employed, the plunger can clear away obstructions to the tube at the will of the operator. A yellowish or reddish tint usually indicates the presence in the fluid of hemoglobin or of red corpuscles actually in solution.

15. Deuts. Zeits. f. Nervenheilk, No. 2.
16. Mathes, Centralbl. f. Gyn., vol. xxviii, No. 8, 1904.
17. Semaine Méd., June 18, 1902.

CONCLUSIONS.

In summing up my conclusions, I would call especial attention to the fact that by no means all cases that show chronic interstitial nephritis are subject to uremia, and to the still more important circumstance that neither sclerosis of the kidney, nor, in fact, arteriosclerosis, predisposes to uremia until hypertension of the vascular system is superadded. The two by no means always go hand in hand. Many cases of high-grade sclerosis present a comparatively normal blood pressure. Certain cases of hypertension show little or no sclerosis and yet apoplexy occurs. Add to sclerosis of the arteries and veins hypertension, however, with the consequent intracranial tension due to this and to local toxic irritation, and we have present at once the ideal conditions for the causation of the uremic picture.

The preceding series of ten cases treated entirely with a view to relieving pressure appears to warrant the following conclusions:

1. The belief is reaffirmed that various toxins are influential in producing the symptoms in various instances of uremia. Among these, probably the most important is one originating in an abnormal digestive tract, or elsewhere, and resembling adrenalin in its physiologic action, as suggested by Thomson.

2. Whether as a result of or a coincidence with toxic irritation, intracerebrospinal overpressure, due to an accumulation of fluid, may and usually does cause the majority of the classical symptoms of uremia, and is often the dominant influence.

3. Spinal drainage may, and in many cases does, promptly relieve the symptoms of uremia, furnishing clinical proof of the foregoing statement.

4. Case 5 demonstrates the fact, however, that occasionally when intracranial pressure has been removed the toxin alone may cause the picture of uremia.

5. Uremic manifestations (other than coma), when due to intracranial pressure, may be either general or localized. Unilateral convulsions, convulsive movements of one limb, monoplegia, hemiplegia, motor or sensory aphasia, and similar phenomena are of rather frequent occurrence. The toxic influence, in the few instances in which it has seemed to act independently of intracranial pressure, has caused only general manifestations, usually of an irritative nature (convulsions, etc.), seldom, if ever, paralytic phenomena.

6. Uremic hemiplegia and other uremic paralyses are due usually to direct pressure on, or edematous infiltration of, the motor centers of the brain, and may usually be relieved by withdrawal of the cerebrospinal fluid.

7. There is a striking suggestiveness in the frequent absence of general edema, though there be an excess of intracranial fluid, arising from an entirely different influence and cause. My most successful cases showed

no edema of the external body, but without exception a high degree of intravascular and intracranial tension.

8. Lumbar drainage should be employed as a routine measure, together with all the known means of reducing systemic pressure or hypertension. Among these the most valuable are free bleeding, free purging, free diuresis, and the administration of large doses of aconite.

9. The ultimate cause of the vascular hypertension of uremia has not yet been discovered. It would appear by no means impossible that the intracranial fluid pressure is partly due to toxic inflammatory exudate; that this causes hypertension within the cranium and favors a similar hypertension throughout the general circulation, or vice versa; and that the symptom-complex of uremia is thus usually due to such a sequence of causes. Probably uremia can not occur in the presence of low intravascular and intracerebrospinal tension.[18]

10. It would appear from the failure in repeated instances to produce any deleterious effect on healthy small animals by injecting successive small quantities of the cerebrospinal fluid from uremic subjects that the toxic principle of uremia is not to be found in the latter. The experiments of Hughes and Carter in 1893 seemed to show that it may possibly be found constantly present in small quantities in the normal blood serum.

11. While lumbar puncture is not infallible, nor devoid of a slight risk to the patient, the procedure should be employed early in the course of uremia, and repeatedly if necessary to accomplish the lowering of systemic hypertension. It may save life and will often dissipate the uremia at least for the time being.

12. Transfusion of normal or other salt solution is harmful in uremia, in that it causes, both by its mechanical and chemical influence, an increase of intravascular and intracranial tension, and supplies certain of the conditions necessary to the uremic seizure.

MOVABLE KIDNEY.

IS IT A SURGICAL LESION? IF SO, HOW IS IT BEST CORRECTED?

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OMAHA.

Further interest in this subject is aroused by a recent contribution from Mr. Treves in which he facetiously questions the existence of this lesion, but immediately suggests a treatment by means of a complicated double-spring truss which, he says, must be delicately adjusted.

It is well understood that the kidney, normally, has a certain range of motion; it is generally admitted that the degree of mobility varies considerably and that it may attain a position easily palpable yet may not cause pathologic changes; it is an accepted fact that its ptosis is sometimes but a part of Glenard's disease; but faithful observers of the anatomy and the pathology that is seen within the abdomen in repeated explorations recognize the additional and—clinically speaking—the rather more important fact that the kidney may attain such a degree of mobility as primarily and seriously to act as an impediment to health and that in so doing it produces in the contiguous organs a pathology which can be neither palliated nor cured by the delicate adjustment of any form of spring truss—the opinion of Mr. Treves to the contrary, notwithstanding.

That this position can be supported will become apparent from the argument of two propositions: first, that the anatomic surroundings of the kidney, in some people, encourages its wide displacement; second, that when so displaced its presence sets up contiguous inflammatory changes, especially peritoneal adhesions, for the relief of which an abdominal support must be impotent, and its use pernicious.

To sustain the first proposition it is but necessary to recall the well-known fact that the postabdominal lumbar fossa, in which the kidney rests, is practically absent in some people. Experienced clinicians actually get accustomed to suspect a movable kidney in a long-waisted, thin-flanked woman. This physical build is in fact the type in which the movable kidney most frequently occurs, although no physique should be considered free from the possibility of the occurrence of a wandering kidney.

Another observation which is made by those who explore the abdomen is that the peritoneum, in its resistance, in the strength of its texture and in the firmness of its attachments, presents the widest variations. It offers, therefore, an equally uncertain support to the kidney. Indeed, it has been my view for some time that the variations in the reflections of the peritoneum, especially in the right side of the abdomen, and the wide difference in its strength and mature development, influence to a marked degree acute and chronic inflammatory changes of this neighborhood.

I would not underestimate the positive relations which exist between the implantation of a virulent germ on the peritoneum and the acute destructive inflammation which follows, nor would I overlook the well-known principle that the location and the amount of exudate are influences directly proportionate to the severity and the dangers attending a given attack of peritoneal sepsis.

But what relates more especially to this subject of nephroptosis is that the peritoneum, like the integument, differs in its susceptibility to irritations and morbid changes. If necessary, I could still further sustain my view by applying the well-known principle of immunity to this subject, viz., that the cells of the body as well as the blood directly contribute to the terminations of abnormal changes when they are once started.

It must appear plain, then, that proposition No. 1 is proved on the ground of individual differences in the topography (amount of concavity) in the lumbar fossæ behind, and in the support offered by the strength and firmness of attachment of the peritoneum in front. Other influences, although important, are, I believe, chiefly contributory or exciting in character, while the two reasons above mentioned are the predisposing ones.

Among the exciting causes, traumatism, variations in intra-abdominal pressure (gestation, tumors or a relaxed muscularis of Glenard), absorption of perirenal fat, occupation influences, or disease of the kidney itself may be mentioned, but generally speaking they are minor in importance.

Proposition No. 2 may be considered demonstrated when I enumerate some of the results of the abnormal range of motion of this organ, which weighs 5 ounces and which has become migratory, namely: the stretching and the uplifting of the peritoneum with the organs which it covers, the direct pressure in one case of the

18. The clinical results obtained by spinal drainage, in the relief of arterial hypertension, confirm the conclusions of Cathelin (Presse Médicale, vol. ii, No. 90, 1903) with regard to a constant intercommunication between the blood circulation and the cerebrospinal fluid by means of lymph vessels.

upper pole on the bile ducts and in another of the lower end on the cecum and appendix, the attrition itself on the peritoneum, producing, at least in some people whose resistance or cell immunity is not great, adhesions between adjacent peritoneal surfaces, the crowding of the omentum to the right side and the interference of the adhesions with return circulation and peristalsis—results but the most tangible and easily recognized changes which primarily and seriously impair the health—to say nothing of the reflex disturbances through the sympathetic nerves.

With these observations I rest this part of my case. To go into the realm of symptomatology is not my purpose, for the reason that symptoms occupy a scope so wide that one observer has said that the very indefiniteness of the symptoms in some cases should suggest movable kidney. Another mentions that a large proportion of the symptoms of disease in general are represented in movable kidney. I believe that when a movable kidney is causing changes which demand surgical interference the symptoms are fairly represented below in class three.

TREATMENT.

Approaching the treatment of nephroptosis gives us a chance to point out the fallacy, if not actual danger, which must follow teaching which employs too prominently the words "always" and "never" in suggesting therapeutic aid, for surgical rules are not permanently fixed and one who teaches that one plan should be always used or that another method should never be followed, promulgates a doctrine harmful in the extreme.

In this affection I believe that the rational treatment will be fairly reflected by pointing out in a judicial way the following facts:

(*a*) Many cases in which the kidney is sufficiently movable to be plainly palpated do not need any surgical treatment. Hygienic and dietary care, with efforts in the direction of increasing the body weight, are logical measures.

(*b*) In other cases the symptoms are more obtrusive, the degree of mobility greater and the reflex symptoms more pronounced, yet intermittent in character. In an individual who is in a position to follow the above rules (under *a*) and to take conveniently a protracted rest, great amelioration in the symptom and in the position of the kidney can be secured.

(*c*) I will here place that class of patients who manifest the trouble in the most exaggerated form, in which there is a palpable and tender kidney, disturbed digestion, headache, dizziness, emaciation and the passage of a large amount of slime and mucus with the bowel movements, with perhaps nausea and even vomiting with recurrent attacks of jaundice. There will be a history of a dull, heavy, aching, recurrent pain about the right side (the right side being most frequently affected), although the patient will not, as a rule, be able definitely to locate the distress. The pulsations of the abdominal aorta are accentuated. The individual especially complains that she becomes completely exhaused on slight exertion and that she is unable to rest comfortably on the left side. Severe, colicky, renal pain due to twisting of the ureter is not common.

I will not differentiate gallstones (cholecystitis) nor appendicitis, either may exist in a case having a movable kidney which may act as an exciting cause of the latter.

In my experience, which includes 62 cases, I have found the following condition which, so far as I am aware, has not been described, viz.: a kidney displaced downward to a point opposite the last dorsal vertebra and fixed in this position, so adherent as to require most careful separation of adhesions and to make its replacement very difficult.

Meeting these severe cases as well as many others in which reposition of the kidney was fairly easily accomplished, yet in which the adhesions between the kidney and the peritoneal surface were most marked, and then exploring the abdomen to clear up all doubts concerning the appendix and the biliary passage and finding no evidence of inflammation in either, and yet finding the omentum matted in dense adhesions to the ascending colon and to the parietal peritoneum, has led me to the positive conviction that a kidney which has become movable on account of the anatomic peculiarity of the patient and which, for the reasons above cited, has caused definite and severe pathologic changes involving particularly the peritoneum, embarrassing the functions of digestion and assimilation and producing reflex disturbances not surpassed by any other lesion, that such a kidney will not tamely submit to a cure which consists in the delicate adjustment of a double-spring truss, which makes pressure on the anterior surface of the abdomen.

ESOPHAGOTOMY FOR THE REMOVAL OF FALSE TEETH,

WITH SOME REMARKS ON COLON ALIMENTATION.*

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History.—A man, 50 years old, a sculptor by occupation, in good health, on Monday, Feb. 27, 1905, at 11 p. m., in a fit of laughter, dislodged and swallowed an artificial plate of vulcanized rubber to which two false upper incisor teeth were soldered.

This plate, crescentic in shape, measured from point to point along the arch two and one-half inches, the direct diameter between the two points of the crescent was one inch and a half, the widest measurement of the plate at the center, including the teeth, was five-eighths of an inch. (Fig. 1.)

Two hours after the accident he was carried to the city hospital in Cincinnati. The house surgeon introduced his finger deeply into the pharynx, but did not feel any foreign substance. On account of severe spasmodic pains, the patient was given several hypodermics of morphia during that night. At 8:30 the next morning deglutition was extremely difficult, the patient complaining of severe pains in the throat and both sides of the chest.

At 11 a. m. of the 28th he was given a small piece of bread which, after thorough mastication and moistening with a draught of water, was swallowed. The surgeon who then visited him introduced a bulbous bougie into the stomach without recognizing the presence of any obstruction. For the eight days he remained in Cincinnati nothing further was done for his relief. In the meantime, on account of pain, the patient took morphia and sustained himself on soft foods and liquids.

Ten days after the injury he went to Indianapolis to attend to professional business, remained there one day, then to Memphis, thence to Atlanta, returning to Cincinnati several weeks after the accident. He then came to New York to consult Prof. R. C. Myles. The latter had a radiograph made which showed distinctly the outline of the plate lying just behind the upper portion of the manubrium, the convexity of its curve looking upward and toward the patient's left shoulder.

Instrumental examination confirmed the location of the foreign body, which so completely closed the esophagus that the

* Read before a special meeting of the Clinical Society of the New York Polyclinic Medical School and Hospital.

finest bougie would not pass it without using a degree of force which was considered unjustifiable. The patient by this time was much emaciated from six weeks of semi-starvation, for the last four days of which he had swallowed only a small quantity of liquids.

Operation.—I saw the patient, Sunday, April 9, six weeks after the accident. Dr. Myles made several attempts to remove the obstruction by seizing it with esophageal forceps. It was, however, so firmly imbedded that it could not be dislodged. The patient was removed to the private pavilion of the Polyclinic Hospital, and at 3 o'clock on that afternoon, assisted by Dr. Myles and the Polyclinic staff, esophagotomy was performed. Chloroform was selected as the anesthetic, as it was desirable to avoid vomiting during or after the operation.

An incision five and one-half inches in length was made along the anterior border of the left sterno-mastoid muscle, the incision extending one and one-half inches on to the surface of the manubrium. The fibers of the sternohyoid and the sternothyroid muscles were separated by dull dissection, the left lobe of the thyroid body turned upward, and careful traction made on this in order to avoid over-tension of the recurrent laryngeal nerve, which was clearly seen as it came from behind the carotid artery and passed upward and inward in the general direction of the inferior thyroid vessel of that side.

In the exposure of the esophagus at this low level very considerable care was necessary to avoid injury to this nerve. A bougie was carried into the esophagus by Dr. Myles, and on this as a guide I made an incision three-quarters of an inch in length through the gullet on its left posterior aspect. This was gradually dilated by inserting the index finger which, carried down to its full length, barely came in contact with

Fig. 1.—Artificial plate. Natural Size.

the upper rim of the plate. On the finger as a guide a pair of dull-pointed scissors, curved on the flat, was passed anterior to the plate and slightly beyond it. With this on one side and the finger opposing it, the upper corner of the plate, which was deeply imbedded in the walls of the esophagus, was carefully loosened and tilted upward, and in that way dislodged and brought up lengthways to the wound and extracted without any further difficulty. The wound in the esophagus was left open, while the upper portion of the superficial wound was closed with four or five silkworm gut sutures. The deeper wound was filled with a light packing of sterile gauze. There was no vomiting during or after the operation.

After Treatment.—The patient was placed in bed on the back, the foot of the bed elevated about twelve inches in order to facilitate drainage upward and away from the mediastinum. Every four hours he received six ounces of normal salt solution by the rectum for the first twenty-four hours. After this the quantity was increased to eight ounces, and in the intervals two nutritive enemata were given. He suffered practically no pain after the operation.

Nothing passed into the esophagus for the four days from Sunday until Thursday, April 13. On this date a tube was easily introduced through the mouth and esophagus and sixteen ounces of milk were carried into the stomach. This was repeated on the next day. On the following day, the 15th, six days after the operation, he began to swallow liquids, and of sixteen ounces of milk given four ounces came out through the wound. The proportion which leaked through gradually diminished by April 20, twelve days after the operation, the esophageal wound was entirely healed, and he is now entirely recovered.

COLONIC ALIMENTATION.

The value of alimentation by the colon as a feature of surgical practice is so important that the following is submitted:

For conveying water by the lower bowel to the blood, normal salt solution should be employed (one teaspoonful of salt to one pint of water which has been boiled and allowed to cool down to the temperature of the body). From six to eight ounces to as much as a pint, and at times more than this, may be employed if absolutely necessary. The foot of the bed should be well elevated so that the liquid will gravitate away from the rectum and thus avoid pressure which induces an effort at evacuation. When there is great intolerance of the lower bowel smaller quantities should be employed with more frequent repetition.

MILK PREPARED BY THE WARM PROCESS.

One of the most useful foods given by the colon is milk. When the bowel is irritable the warm process, which is as follows, should be employed: Put a teacupful (gill) of cold water and the powder contained in one of the peptonizing tubes[1] into a clean quart bottle and shake thoroughly; add a pint of cold fresh milk and shake again; then place the bottle in a pail or kettle of warm water—about 115 F.—or not too hot to immerse the whole hand in without discomfort. Keep the bottle in the water bath for from thirty to forty minutes or longer if a greater degree of pre-digestion seems necessary, then put it immediately on ice. As a portion is needed, shake the bottle, pour out the quantity—usually four ounces—and heat gently to blood warmth. Avoid hasty heating and over-heating.

Six, eight, or twelve ounces may be given every four or five hours, or a larger quantity if the case is urgently in need of nutrition and the bowel is tolerant. In rectal feeding it is of great importance not to overcrowd the colon sufficiently to produce irritation.

COLD PROCESS.

In cases where the enema can be retained for some time without irritation, the milk may be peptonized by the cold process. Put a teacupful (gill) of cold water into a clean quart bottle and dissolve it by shaking thoroughly the powder contained in one of the peptonizing tubes; add a pint of cold fresh milk, shake the bottle again and immediately place it directly in contact with the ice.

Warm each portion as it is required for injection, being careful to avoid hasty heating or over-heating.

Or, only a sufficient quantity to use may be prepared each time by the following method: In two tablespoonsful (one ounce) of cold water dissolve one-quarter of the contents of a peptonizing tube; add eight tablespoonsful (four ounces) of cold milk; warm to the proper temperature and inject at once.

EGGS.

In administering eggs the following formula is advisable: Dissolve the white of an egg in three times its bulk of warm water; to this add the contents of one of the peptonizing tubes, stir well, and inject at once. The water should be just warm enough to make the mixture the proper temperature for the injection, not hot enough to coagulate the albumin.

Another method of using the whole of the egg is to beat the white and the yellow well together, with a pint of milk, adding a gill of water in which the contents of

1. I prefer those prepared by Fairchild Brothers & Foster.

a peptonizing tube has been dissolved. It may be employed cold, but if it is thought best to use the warm method, warm water can be used as in the formula immediately preceding.

BEEF JUICE.

In using beef for rectal feeding, to a tablespoonful of minced lean beef add four tablespoonsful of cold water, and gradually heat to boiling. Strain all through a fine sieve or colander. When it becomes lukewarm add the contents of one of the peptonizing tubes, and it is ready for injection. More water may be added should it seem desirable.

PEPTONIZED FOOD AND WHEY.

I have used Fairchild's panopepton in rectal feeding with much satisfaction. It should be diluted in two or three parts of lukewarm water, or preferably, normal salt solution.

If it be desired to employ whey, it can be combined with panopepton at times as follows: Put one pint of cold fresh milk in a clean saucepan and heat it to not over 100 F. Add two tablespoonsful of essence of pepsin and stir just enough to mix. Let it stand until firmly jellied, then beat with a fork until it is finely divided, and strain. Warm to the proper temperature and inject without dilution. Panopepton and whey may be used in conjunction by adding three parts of whey to one of panopepton.

Panopepton and peptonized milk may be used by mixing one tablespoonful of panopepton with two or three of peptonized milk prepared by the warm process. Mix the panopepton and peptonized milk when required for use.

THE SUBMUCOUS RESECTION OF DEFLECTED NASAL SEPTI.

THE SO-CALLED KILLIAN OPERATION. REPORT OF CASES.*

FRANCIS W. ALTER, M.D.
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This operation has been credited to various authors, among them being Killian, Hajek, Mensell, Janen, Freer, Krebs, Boenninghaus and others. It is, however, generally spoken of as the Killian operation, and perhaps it will not be amiss for me thus to speak of it in this paper.

The operation consists essentially in a submucous resection of the deflected area, whether in the cartilaginous or bony septum, or both, and the *modus operandi* and technic, while tedious and trying to both patient and operator, yet offer, on the whole, a brilliant and satisfactory result.

The various steps will readily be understood by referring to the illustrations here offered. The incision is made from above down, beginning on the side of the occlusion with membraneous septum and tip of the nose turned abruptly away from the occluded nostril.

This maneuver brings sharply to view the anterior border of the cartilaginous septum. With a sharp bistoury, this linear prominence is traversed from above downward, the incision being just deep enough to bring into view the anterior border of the white glistening septum. The mucous membrane is elevated, together with the perichondrium, on the convexity of the deflection, and this lifting-off process is continued well back of the deflection, extreme care being taken not to push the elevator through the mucous membrane. Should this be done, perforation will occur, especially if a similar thing has been done on the other side. It must be borne in mind that the lifting off of the mucous membrane must extend well up and low down, and that this must be thoroughly done before beginning to remove the deflected area, or else, in the removal, that part of it from which the mucous membrane has not been thoroughly elevated will drag along its mucous cover, and so give rise to a perforation. Having separated the mucous

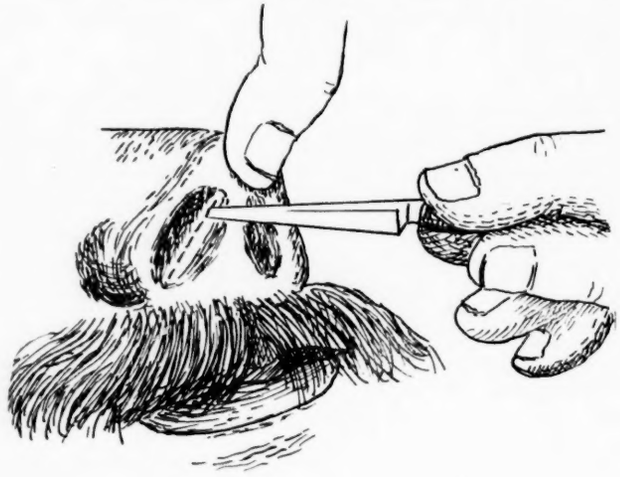

Fig. 1.—First step in operation.

membrane from the septum on the one side, the same proceeding is carried out on the other, starting from the tip of the septum as before, and from the same nostril. At the beginning, it is well to employ a knife in order to make the cleavage exactly between the septum and the perichondrium. Once that this start is made, however, it is best to employ some sort of a periosteal elevator.

In order to facilitate the peeling-off process, and also

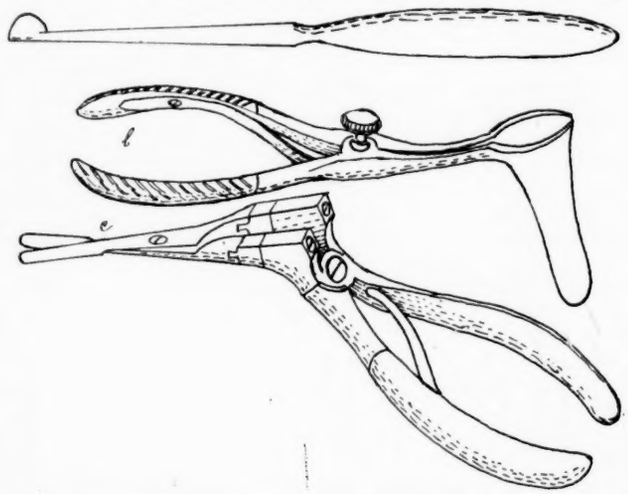

Fig. 2.—a, Combination periosteotome and knife; b, long-bladed Killian nasal speculum; c, Hartmann's conchotome.

to increase one's orientation sense, it is best, and, indeed, I may say that it is a *sine qua non* for the successful performance of this operation, to employ the Killian long nasal speculum, the blades of which extend well back into the nostril. At the outset, it is more convenient to use the ordinary Kramer bivalve speculum. Later, however, as the separation has increased, it will be much better to use the Killian instrument. Once

* Read before the American Laryngological Association at Toledo, Ohio.

that some progress has been made on the second side, the speculum may be employed, with the cartilaginous septum between the two blades. This will aid materially in the work, giving a clear idea as to location, etc. (Fig. 2).

Having carefully peeled off the mucous membrane, the septum may be removed from before back (Fig. 3), except the upper part, one-quarter from the roof of the nose. This is important. Hajek believes that the retention of this part of the septum aids in preserving the symmetry of the nose.

The amount to be removed depends on the extent of the deflection, and whether or not it is in the bony part, experience having shown that the vomer can be removed if necessary and no bad results follow. Very generally that part of the septum made up of the perpendicular plate of the ethmoid must also be removed. The instruments employed in the removal of the septum are a pair of scissors, and I usually use the ones after Hajek and Hartman, a conchotome, and a chisel, the latter being used to remove that part of the septum which articulates with the maxillary ridge along the floor of the nose.

By observation and experience it has been impressed on me that the removal of this portion of the septum along the floor of the nose is the most difficult part of the

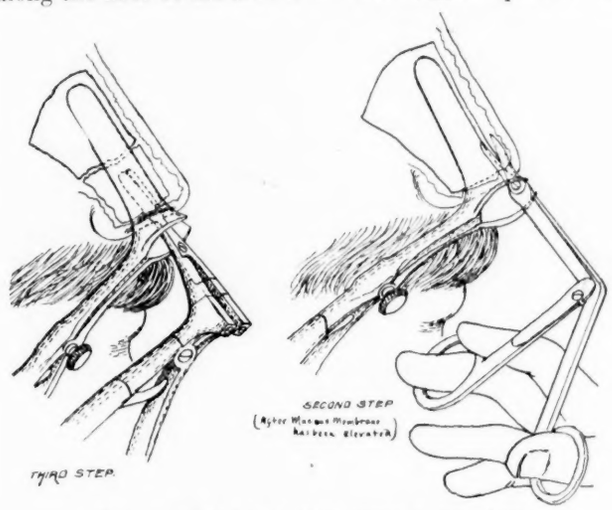

Fig. 3.—Second and third steps in operation.

operation, and it is here, too, that one inflicts the most, if not the only, pain in the operation. In my first two cases I employed a rongeur in crushing this bony ridge; this necessitated strong downward pressure, with resultant pain; in one of my cases I used a chisel, placing it where wanted and having an assistant tap it with a hammer.

In beginning the operation, I apply a 20 per cent. solution of cocain to the septum, following this with adrenalin, after which a Schleich solution is injected under the mucous membrane. This infiltration, in addition to bringing about a condition of anesthesia, also aids in lifting off the mucous membrane, paving the way, so to speak, for its elevation and removal. It is well in the removal of the septum carefully to inspect the progress being made,, and in no better way can this be accomplished than by repeatedly inserting the little finger in the nostril and by palpation determining whether the defect is being properly removed. It is astonishing what a keen sense of satisfaction this will impart and how unerringly the operator can proceed.

Having removed the offending part of the septum, the two mucous flaps usually fall gracefully into the middle line. To quote Hajek, the septum is now *"Künstlich dar gestellt besser als es gewöhnlich ist im natur."*

In one of my patients I purposely left small islands of cartilage, believing that this would leave a nidus for future proliferation, and so it has proved, the septum having a no inconsiderable degree of rigidity.

The after-treatment of these cases is simplicity itself, and this is in marked contrast to most of the other operations which necessitate splinting, etc. A loose packing of iodoform gauze is placed in each nostril and allowed to remain till the next day. I do not think it at all necessary to use sutures; indeed, I think it imperative to leave the wound open for the exit of whatever oozing or bleeding there may be. I remove the packing daily for several days, and usually I find no need of replacing it after the third day.

There will be some bleeding and oozing the day of the operation, but nothing of an alarming character, and soon danger from this source is *nil*.

The first case which I report is of peculiar interest, inasmuch as an Asch operation had been performed with negative results, and which left a slight perforation.

CASE 1.—The patient gives a history of having sustained a fracture of the nose from the explosion of a cylinder of carbonic acid gas. He noticed that after that occurrence his nostril was occluded on the right side. He suffered greatly from periodic attacks of what he calls hay fever, together with headache and the usual semi-suffocative sensation which these patients have. He also had the marked stuffy nasal voice noticed so often with a deflected septum.

Examination.—An examination of the nose revealed a somewhat unsymmetrical external appearance with a slight depression near the tip. An examination of the right nostril showed a huge deflection which extended well back and involved the bony septum. As the vestibules of the nostrils were large, they were quite ideal for intranasal manipulation. The left nostril was also choked, due to an enlarged inferior turbinal, together with a collection of small polypi.

Treatment.—The polypi were removed and their bases cauterized. The turbinate was also put through the same process. I operated in this case in the manner described, the result being all that could be desired.

Result.—Breathing was re-established on the occluded side. Except for a slight perforation which is not chargeable to this operation, the appearance of the septum is quite ideal. The patient expresses himself entirely pleased, being loud in his praises of this method in contrast with his former operation; especially does he emphasize his gratitude and approval of the absence of the splints, which he thought a species of refined torture. To quote his own words: "I am glad you will not have to put that lobster claw in my nose, for if you do I prefer to leave my nose in its present condition."

CASE 2.—The second patient has been the subject of impeded nasal respiration as long as he can remember, and in his position as captain of one of the local fire stations, was much annoyed, as at times he was practically incapacitated from properly pursuing his work, because of his inability as a mouth breather to contend with the smoke encountered on entering a burning building.

Examination.—An examination of the nose showed a bending of the septum to the right, with an inability to breathe through this nostril.

Treatment and Result.—He was operated on by the resection method, and is now able to breathe very well and is satisfied with the results.

CASE 3.—The third patient has had difficulty in breathing through his left nostril for a number of years, due, he thinks, to being struck on the nose with a baseball bat. The hearing in his left ear is considerably obtunded, being on the side of the occlusion, a not infrequent concomitant of deflected septi.

Treatment and Result.—He was operated on under local anesthesia and the deflected area resected. With the exception

of a small perforation the results were ideal. I attempted to close the perforation with sutures and was partially successful. I believe that if these perforations are closed at once they can be healed.

SUMMARY.

The points reached in this paper may be briefly summarized as follows:

1. Submucous resection of deflected nasal septi can be performed under local anesthesia with but relatively a small amount of pain.

2. This operation offers the most certain results in all deflected septi, whether in the cartilage or bony septum, or both.

3. The sagging back into the former pathologic position, as is often seen in other operations, notably by the method of Asch and by the use of the punch, can not occur with this operation. The offending area is removed, and hence is not susceptible of recurrence.

4. The correction of this condition by an operation without the necessity of employing splints places it well in the foreground from a humanitarian point of view, for, say what we will, splints are painful, do not always accomplish their purpose, and make the operation unpopular. Any operation which does away with their use can safely be accepted as a valuable step in advance.

5. The after-treatment with this operation has been cut down from four to six weeks by the old method, to two weeks at the most. It is painless, less apt to have sepsis, and with care perforation can be avoided.

6. It has been said that this method takes too long, but that can not be rightly charged to the operation.

7. In conclusion, this operation offers the most rational, the most certain and the most enduring results. It is not so hard to perform as it looks, it requires no special instruments beyond what are usually found in a rhinologist's armamentarium (except a Killian long-blade nasal speculum), and, lastly, with this operation we have been given a means of overcoming what has been, to a considerable extent, a reproach to rhinology, the non-successful septum operation.

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INSANITY AT PUBERTY.*

CHARLES W. BURR, M.D.
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Though pubertal insanity is rare it is important not only because many patients die and others are left permanently demented or imbecile, but also because in many of those who seemingly recover the attack is a warning of liability to mental breakdown later in life. Since the true cause of insanity is largely within the individual, is part and parcel of his mental makeup, depends relatively little on the mere accidents of his external life, his environment, and much on his ancestral history, and since the exciting causes merely give opportunity for insanity to arise, any mental abnormality occurring during the developmental period is of importance, however trifling it may seem in itself, as indicating mental instability or a tendency toward deviation from the normal, which under proper education may be corrected, but which if left uncorrected will certainly lead to disaster in the future.

Mental disease appearing in childhood, at puberty, during adolescence, or indeed at any period of life, indicates that the patient possesses less than the normal power of resistance to stress, whether it be the mere ordinary wear and tear of life, the exhaustion of bodily disease, mycotic infection, or vicious habits. Persistent recurring somnambulism, outbursts of causeless violent anger, frequent night horrors and day horrors in children are all signs of nervous and mental instability which can only be corrected by the greatest care and wisdom in education. Since puberty is the first and greatest period of mental and emotional stress it is not remarkable that then insanity greatly increases in frequency. At this time also it begins more nearly to resemble the clinical picture seen in the adult. In childhood its manifestations are simpler than in the adult because the mental and emotional life is simpler. The mental life of the insane is based on perverted reminiscences of past experience and is rich or barren, simple or complex, as the previous life was full or empty. Complete dementia alone pulls down all ages and all intelligences to the dead equality of mindlessness. The insane child may suffer from maniacal outbursts, emotional or intellectual depression, hallucinations, transitory delusions, obsessions and imperative impulses, and he may, of course, from the violence of the disease, be left demented or imbecile, but he cannot present the rich growth of delusions shown by his elder brother. He who has never heard of kings can not have the delusion that he is a king, and only those who have had strongly impressed upon them the dogma of the unpardonable sin can believe they have committed it. He alone can think he is persecuted who has learned something of the real persecutions that exist in the world. The child cannot show the curious perversions of logic of the adult paranoiac because logic itself is only just beginning to appear in him. The adult chronic reasoning maniac often possesses rich wit, perverted yet real. The boy shows only an impish mischievousness. As gradually, at puberty and through adolescence, the emotions broaden and deepen, sexual feeling appears, pure egotism normally becomes less marked and intellectual judgment comes into being, insanity conforms more and more to the adult type.

The study of psychiatry has been much hindered in its progress by the fact that we arbitrarily confine insanity within very narrow limits and pay but little attention to mental symptoms outside its boundaries or too often content ourselves by explaining them on the ground of viciousness. Much seeming viciousness is real disease. Psychiatry needs for its material for study not only the inmates of asylums and hospitals, but also the world at large, both old and young, well and ill. Wise schoolmasters know more about the normal and abnormal development of children than many physicians and could throw much light on obscure problems of mental disease. Unfortunately many schoolmasters are not wise, but foolish, mere hearers of lessons and correctors of exercises.

The types of insanity occurring at puberty and adolescence are as numerous as the types of boys and girls. Everyone is probably a little unbalanced at this time. This is physiologic. It is associated with sexual development and dependent on it. The healthy boy of healthy stock, even though his environment may be far from the best, passes through this period successfully and finally reaches stable equilibrium, the other now begins to show signs of abnormal development which later will grow into some distinct form of insanity. Probably the most common type, though seldom seen by

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alienists, and but little studied because its victims rarely get into asylums, or, indeed, receive medical attention at all, is a slowly oncoming weakening of the mind without delusions or hallucinations, a mere gradually increasing disability for mental work, usually stopping far short of complete dementia. Every schoolmaster knows the type. A boy who before puberty was bright, learned quickly and was interested in all things which make up a boy's world, begins to be inattentive, learns less and less readily, loses all ambition, no longer wishes to do things, ceases to have interest in play, becomes asocial and physically inert. He may present no moral abnormality, indeed, frequently his moral nature is of the best. The difficulty is entirely intellectual. His final state is that of mild dementia coming on slowly, not the result of any acute infectious disease, nor of masturbation, but caused by an inherent, congenital inability of the organ of mind to withstand stress. He is born with potential power enough to develop up to puberty or the earlier years of adolescence and then dissolution begins. In mild cases dementia is too severe a word, there is only slight feeble mindedness, and the boy who gave promise of being a leader or at least a successful man becomes only fit to take a very subordinate place in the world's army of workers. In another type there is added to the mental defect, or, indeed, overshadows it, gross moral aberration. The child who was average up to puberty begins then to have outbursts of causeless anger, to be cruel, to forget all he ever learned of his duties to others, to chafe and fret under restraint, to lose self control, to be a creature of impulse and passion and a slave of bad habits. He may in power of reasoning be equal or even above the average. Many of the criminal class are of this type. They are rarely recognized as insane in their earlier years, but if they escape being hanged or the diseases which nature uses to kill off the unfit they eventually frequently die in asylums with chronic mania or some secondary dementia.

Another type, which has its beginning at puberty or early adolescence, though its full development is not reached till adult life, is the so-called original paranoia. There is no doubt that a clinical picture indistinguishable from original paranoia may appear in people whose childhood and youth showed no signs of mental disease, but frequently it is merely the natural development of a nature that from its conception was twisted, warped and abnormal. The boy normal before puberty then begins to be eccentric. He becomes vain of his ability, thinks he is of more importance than his parents and relatives, and that he is not treated with proper consideration. Sometimes he is a great student of many things, reading much and learning little, though, being plausible, he may deceive others as he deceives himself into believing that there is a great future before him. Egotism grows to such proportions that finally he believes he owes no duty to the world but everyone owes duty to him. All who live with him must give way to him. He must always have his way and for the sake of peace parents and brothers and sisters give it him. He has much religiosity but no religion. He day-dreams much of sexual matters, either with a sickly sentimentality or bestiality, or he may mix the two. He may have ideas of great inventions that never work. Soon or late he turns against the world that will not bother itself about him and being sure of his real greatness explains it by the delusion that people are persecuting him therefore. He thinks he must be great or people would not abuse him. They are envious of him. In paranoia egotism reaches its maximum. It may be acquired but more often is congenital. Paranoiacs are as a rule like poets, born, not made.

In the above described types only the prodromal symptoms, if one may call them so appear at puberty, the disease not reaching its height until adult life. Acute insanity also occurs at puberty and, though rare, is sufficiently frequent to be of interest. It may arise without any discoverable external cause, or may follow an acute infectious fever (especially typhoid), fright or excessive masturbation. The last, however, is often a sign of degeneration rather than a cause of insanity. The following is a typical case of acute mania, the exciting cause of which I could not discover:

CASE 1.—The patient was a boy 13 years old. His mother stated that he had always been healthy. He was a cash boy in one of the large stores and had worked hard. He was a reader of dime novels and a cigarette smoker, but had shown no sign of sexual feeling. He was brought to the Philadelphia Hospital in March, 1903. One week before admission he suddenly became violent. It was stated that previously he had shown no evidence of ill health, but his people are not intelligent and certainly are unobservant, and it is very possible that prodromal symptoms were overlooked. However that may be, he became suddenly violent, cursed and swore, complained of pain in the head, slept little and raved all the time. When I examined him I found a thin, pale-faced, frightened-looking boy with widely dilated pupils, dry skin, without fever, and with a strong pulse. The knee-jerks were large. He was very dramatic, gesticulating and pointing with his fingers. He talked unceasingly of Indians, burglars and murderers. He paid only momentary attention to questions asked him, sometimes beginning an answer but soon wandering off; more frequently he kept up his raving. He lived in his own world, and his train of thought was not influenced in any way by the things going on around him. He did not, as is usual, take up words or sounds or sights as a basis for his train of thought. He would eat food set before him, talking all the time, but never asked for it. At first he slept very badly, but later fairly well. He paid no attention to his bladder and bowels. His emotional state varied between elation and fright, but there was never mere depression. After a few weeks he began to improve. He would answer short questions, talked less and less about the Indians, burglars and murderers. He saw and paid more attention to what was going on around him. He did not pass through a stage of depression, but went directly but slowly from the period of excitement to that of normal life. In about three months he regained health.

CASE 2.—Another boy, also 13 years old, is probably best classified as a case of acute confusional insanity. He had arrived in this country from Russia only a short time before his admission to the hospital, having made the journey alone. Whether his illness was the result of homesickness and fright at being alone so long or whether there was some mycotic infection is impossible to determine. We obtained only a meager history of the onset of his illness. It appears that on his arrival in Philadelphia from New York he appeared frightened and excited. He understood little that was said to him and talked incoherently. At times he would sing. He was somewhat violent at times, but could always be controlled. He would not eat. On admission to the detention ward he was highly excited, continually shouting, singing, whistling. By the time he was transferred to the insane department, a week later, he had become much quieter. Apparently there had been some slight improvement in his mental condition. Though excited and at times noisy, and though he had still to be fed with a stomach tube, his attention could be held long enough for him to answer a question. He remembered that he had been seasick on the journey across the ocean, but did not remember being in his uncle's house. He did not remember being brought to the hospital. Indeed, his mind was entirely blank concerning everything from the time of his arrival in New York until he found himself in the hospital a couple of

of a small perforation the results were ideal. I attempted to close the perforation with sutures and was partially successful. I believe that if these perforations are closed at once they can be healed.

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* Read at the meeting of the Association of Medical Officers of American Institutions for Idiotic and Feeble-Minded Persons, Vineland, N. J., 1905.

alienists, and but little studied because its victims rarely get into asylums, or, indeed, receive medical attention at all, is a slowly oncoming weakening of the mind without delusions or hallucinations, a mere gradually increasing disability for mental work, usually stopping far short of complete dementia. Every schoolmaster knows the type. A boy who before puberty was bright, learned quickly and was interested in all things which make up a boy's world, begins to be inattentive, learns less and less readily, loses all ambition, no longer wishes to do things, ceases to have interest in play, becomes asocial and physically inert. He may present no moral abnormality, indeed, frequently his moral nature is of the best. The difficulty is entirely intellectual. His final state is that of mild dementia coming on slowly, not the result of any acute infectious disease, nor of masturbation, but caused by an inherent, congenital inability of the organ of mind to withstand stress. He is born with potential power enough to develop up to puberty or the earlier years of adolescence and then dissolution begins. In mild cases dementia is too severe a word, there is only slight feeble mindedness, and the boy who gave promise of being a leader or at least a successful man becomes only fit to take a very subordinate place in the world's army of workers. In another type there is added to the mental defect, or, indeed, overshadows it, gross moral aberration. The child who was average up to puberty begins then to have outbursts of causeless anger, to be cruel, to forget all he ever learned of his duties to others, to chafe and fret under restraint, to lose self control, to be a creature of impulse and passion and a slave of bad habits. He may in power of reasoning be equal or even above the average. Many of the criminal class are of this type. They are rarely recognized as insane in their earlier years, but if they escape being hanged or the diseases which nature uses to kill off the unfit they eventually frequently die in asylums with chronic mania or some secondary dementia.

Another type, which has its beginning at puberty or early adolescence, though its full development is not reached till adult life, is the so-called original paranoia. There is no doubt that a clinical picture indistinguishable from original paranoia may appear in people whose childhood and youth showed no signs of mental disease, but frequently it is merely the natural development of a nature that from its conception was twisted, warped and abnormal. The boy normal before puberty then begins to be eccentric. He becomes vain of his ability, thinks he is of more importance than his parents and relatives, and that he is not treated with proper consideration. Sometimes he is a great student of many things, reading much and learning little, though, being plausible, he may deceive others as he deceives himself into believing that there is a great future before him. Egotism grows to such proportions that finally he believes he owes no duty to the world but everyone owes duty to him. All who live with him must give way to him. He must always have his way and for the sake of peace parents and brothers and sisters give it him. He has much religiosity but no religion. He day-dreams much of sexual matters, either with a sickly sentimentality or bestiality, or he may mix the two. He may have ideas of great inventions that never work. Soon or late he turns against the world that will not bother itself about him and being sure of his real greatness explains it by the delusion that people are persecuting him therefore. He thinks he must be great or people would not abuse him. They are envious of him. In paranoia egotism reaches its maximum. It may be acquired but more often is congenital. Paranoiacs are as a rule like poets, born, not made.

In the above described types only the prodromal symptoms, if one may call them so, appear at puberty, the disease not reaching its height until adult life. Acute insanity also occurs at puberty and, though rare, is sufficiently frequent to be of interest. It may arise without any discoverable external cause, or may follow an acute infectious fever (especially typhoid), fright or excessive masturbation. The last, however, is often a sign of degeneration rather than a cause of insanity. The following is a typical case of acute mania, the exciting cause of which I could not discover:

CASE 1.—The patient was a boy 13 years old. His mother stated that he had always been healthy. He was a cash boy in one of the large stores and had worked hard. He was a reader of dime novels and a cigarette smoker, but had shown no sign of sexual feeling. He was brought to the Philadelphia Hospital in March, 1903. One week before admission he suddenly became violent. It was stated that previously he had shown no evidence of ill health, but his people are not intelligent and certainly are unobservant, and it is very possible that prodromal symptoms were overlooked. However that may be, he became suddenly violent, cursed and swore, complained of pain in the head, slept little and raved all the time. When I examined him I found a thin, pale-faced, frightened-looking boy with widely dilated pupils, dry skin, without fever, and with a strong pulse. The knee-jerks were large. He was very dramatic, gesticulating and pointing with his fingers. He talked unceasingly of Indians, burglars and murderers. He paid only momentary attention to questions asked him, sometimes beginning an answer but soon wandering off; more frequently he kept up his raving. He lived in his own world, and his train of thought was not influenced in any way by the things going on around him. He did not, as is usual, take up words or sounds or sights as a basis for his train of thought. He would eat food set before him, talking all the time, but never asked for it. At first he slept very badly, but later fairly well. He paid no attention to his bladder and bowels. His emotional state varied between elation and fright, but there was never mere depression. After a few weeks he began to improve. He would answer short questions, talked less and less about the Indians, burglars and murderers. He saw and paid more attention to what was going on around him. He did not pass through a stage of depression, but went directly but slowly from the period of excitement to that of normal life. In about three months he regained health.

CASE 2.—Another boy, also 13 years old, is probably best classified as a case of acute confusional insanity. He had arrived in this country from Russia only a short time before his admission to the hospital, having made the journey alone. Whether his illness was the result of homesickness and fright at being alone so long or whether there was some mycotic infection is impossible to determine. We obtained only a meager history of the onset of his illness. It appears that on his arrival in Philadelphia from New York he appeared frightened and excited. He understood little that was said to him and talked incoherently. At times he would sing. He was somewhat violent at times, but could always be controlled. He would not eat. On admission to the detention ward he was highly excited, continually shouting, singing, whistling. By the time he was transferred to the insane department, a week later, he had become much quieter. Apparently there had been some slight improvement in his mental condition. Though excited and at times noisy, and though he had still to be fed with a stomach tube, his attention could be held long enough for him to answer a question. He remembered that he had been seasick on the journey across the ocean, but did not remember being in his uncle's house. He did not remember being brought to the hospital. Indeed, his mind was entirely blank concerning everything from the time of his arrival in New York until he found himself in the hospital a couple of

days before the examination. (His relatives stated positively that he seemed entirely well on his arrival at New York, so it would seem that his illness obliterated all memory or at least power of recollection of events that had happened during some days previous to the onset of his illness.) It must not be thought that he made the statements above given consecutively and quietly in answer to questions. On the contrary, he was very confused and excited during the whole time, and only now and then could hold himself in enough to talk coherently for a minute or two. He improved a little for several days and began to sleep well, though he still had to be fed. Very soon, however, he became excited again, and later stuporous and very weak so that he could not stand. Finally, four weeks after the onset of his illness and while still stuporous, he had a violent nose-bleed and died in a few minutes. For several days before death his gums were slightly swollen and oozed a little blood. His urine was free from albumin, sugar or casts. It was acid and of a high specific gravity (1034). A blood examination a week before death revealed 5,270,000 erythrocytes, 14,000 leucocytes and 72 per cent. hemoglobin. At necropsy the brain was much congested throughout. There was marked congestion of the trachea and bronchi. The lungs were congested and in places carnified. There were some old slight pleuritic adhesions. The stomach contained about six ounces of milk and eggs, but no blood. There were a few pinhead-sized submucous gastric hemorrhages. The thyroid gland, kidneys and intestines were normal. I confess I am entirely ignorant of the exciting cause of his illness. Whether it was the mental shock resulting from a young boy traveling several thousand miles and suffering a large part of the time from seasickness or whether what he called seasickness may have been some acute infectious fever is, of course, indeterminable. The pathologic condition found in his lungs arose, I am sure, after the onset of his mental symptoms.

The influence of mental shock in causing insanity in children is shown by the following case:

CASE 3.—The patient was a schoolgirl 14 years old. She had always been a nervous, delicate child, but was bright, active and full of energy. One day she was almost run over by a carriage. She was not injured physically, but was much frightened. She ran home and fell in collapse in the hall. She was kept in bed two weeks, during which time she was in a state of constant terror. She then improved a little and was allowed to get out of bed, but when I saw her, about five months later, she was still ill. She was afraid to be left alone or in the dark. She had frequent attacks of weeping and was greatly depressed, sitting for hours saying nothing and answering questions only in monosyllables. Whereas previously she had been fond of reading she now cared nothing for books and could not be taught anything. She never played and never smiled. Her expression was vacant. She knew perfectly well where she was and who she was, had no delusions or hallucinations and answered questions intelligently, but she was listless and inert and took no interest in anything. Her memory for recent and remote events was good. Her appetite was poor, her sleep troubled. Physically she was pale and thin, with cold bluish-red hands and dilated pupils. The deep reflexes were exaggerated. I advised that she should be sent to the country, fed on milk, eggs and vegetables, made to take outdoor exercise and given long hours of rest. What the result was I do not know, because she dropped out of my sight.

The acute infectious fevers, chorea and acute articular rheumatism are responsible for a large number of the cases of mental disease occurring during childhood, puberty, and adolescence. Whether mycotic infection or the exhaustion consequent to disease is the direct cause is still undetermined. Probably both act. Certainly the mental symptoms that occur early in the course of fever are directly caused, sometimes by the fever itself, sometimes by bacterial poisoning. In the later cases beginning during convalescence mere exhaustion and malnutrition of the brain is a sufficient cause. Post-febrile insanity is so infrequent that it is impossible to state with any certainty which one of the infectious fevers is most liable to be followed by it. Scarlet fever, measles, and typhoid fever seem to be the most important. In typhoid fever delirium is really a symptom of the disease. Almost no case of any severity escapes it. The more dangerous cases are those in which insanity begins during convalescence. Sometimes the only symptoms are permanent weakmindedness or marked imbecility. The amount of mental defect left varies greatly. There may be only slight obtunding of the faculties, a boy previously bright becoming dull and ordinary, or imbecility may be so great as to need permanent institutional treatment. On the other hand the patient may pass through an attack of mania, melancholia or stuporous insanity and recover or be left with more or less dementia.

Since Kraepelin's extensive and exhaustive studies, much has been written on the subject of dementia precox. It has become a very inclusive title, taking in almost all types of insanity occurring during puberty and adolescence and not a little of the insanity of adult life. It surely is not a distinct and definite disease as are paresis and typhoid fever, but serves a purpose in grouping together certain cases more or less similar in clinical aspect. The following case may be classed here as conveniently as under any of the heads under which insanity accompanied by stupor has been put.

CASE 4.—The patient is a white, native American boy, 14 years old, who was admitted to the Philadelphia Hospital in September, 1904. His mother stated that in July she noticed that he was acting strangely. He would take off his clothes and wander about the house. He slept badly and passed a large part of the night walking aimlessly up and down stairs. Soon he became taciturn and ate but little. A few days before admission to the hospital he became excited, accused his mother of poisoning him and refused to eat. When he was brought to the hospital he was well nourished. He talked little, saying he was sick and had had pains all over his body for about a week. He said nothing about having been poisoned. He was stubborn and rarely answered a question. He would take food, but never asked for it. He lay quietly in bed most of the time, but sometimes wept and whimpered, for which he gave no explanation. His pupils were widely dilated. The knee-jerks were absent. The eye grounds were normal. In November he suddenly beame stuporous. He lay perfectly quiet, paying no attention to anything, passed urine and feces in bed, made no attempt to swallow food put to his mouth, and showed no sign of sensibility except that if a leg or arm were sharply pinched he would withdraw it. He obeyed no commands, however simple. Talking to him caused, as I have frequently seen in other patients, great dilatation of the pupils. The knee and Achilles jerks were absent. The plantar jerk was normal and the abdominal reflexes present. There was no rigidity of the spine, but any attempt to open his mouth to feed him caused him to hold it tightly shut. Sometimes he was cataleptic in slight degree, but most of the time a leg or arm raised in the air fell so soon as support was removed. He rapidly lost flesh and color and became much emaciated. His hands became clammy and blue. He remained in this condition of apparent stupor until January 3, when for the first time he began to chew food put in his mouth. January 28 he began to talk, saying he was hungry, and asked for milk and a banana. Next day when another boy patient asked him how he was he swore roundly. As yet he would not answer a question or obey a command. Almost a week before beginning to speak his hands resumed their natural color and he put on a little flesh. By March 12 he began to talk more, would feed himself, would obey commands and answer questions and ten days later he was perfectly conscious, was interested in things around him, talked like a normal boy and ate well. He had gained much weight and color, but was so weak that he could not stand alone. He remembered and related to us many things that happened in

the ward during his apparent stupor. When asked why he had refused to talk for so long he said he didn't know. He guessed it hurt him. He rapidly improved in strength and to-day (April 22) is a fair example of the average street boy—bright, tricky, and with none too much moral sense.

The most interesting symptom in this case was the stupor lasting about three months. Stupor is an inappropriate name for the condition, but its use has become so universal that it probably would now be impossible to displace it. Stupor should mean a condition of stupidity with great but not complete obscuration of consciousness. This boy's condition was not loss of consciousness, but absence of evidence of its presence. As a matter of fact, he was conscious all the time, as is proved by the fact that he had a clear remembrance of what occurred while he was apparently unconscious. His condition was probably caused by aboulia, a paralysis of the will, an inability to will to do anything. In some patients refusal to talk, to eat and to obey commands is surely dependent on a delusion that they can not or must not eat. Sometimes, indeed, after recovery patients will so explain the condition, but a patient's reason for his previous conduct is not always to be accepted as accurate. As a rule the apparent stupor passes off suddenly after sleep, but in this boy the return of normal mental function was slow, and occupied many days. Sometimes the condition lasts many months as in a young man at the Philadelphia General Hospital, who has been in apparent stupor for two years. Sometimes also there may be long periods of stupor alternating with periods of more or less normal consciousness.

When cases of general paralysis were first reported as beginning at puberty and adolescence much skepticism was expressed as to their genuineness. To-day, however, it seems proved that though very rare, paresis may occur at an early period in a child whose parents are syphilitic. The influence of other chronic organic brain diseases in causing insanity in children and youths has been studied but little.

CASE 5.—One patient I have seen could be classed roughly as an imbecile but I believe his illness has been caused by some slowly oncoming organic brain disease. He is now 16 years old and his present illness dates from his twelfth year. He was healthy at birth. He was breast fed for eleven months. He began to walk and to talk at the proper time and developed normally until the twelfth year. Then he began to suffer from headache. He was taken from school a year later on account of his health. He began to fail mentally and several years later it was noticed that he was awkward in the right leg in walking. He continued to complain of headache, became mentally weaker and hard to manage. When I examined him he showed some spastic palsy of the right leg with flat foot, abortive ankle clonus on the right side, and increased knee jerks on both sides. He had no other sign of physical disease except some slight post-nasal adenoids which were later removed without influencing his mental state. The eye grounds and visual fields were normal and permit me to say, for the sake of those who believe refractive or ocular muscular disturbances cause all ills, that two excellent oculists could find no excuse for treating him. He was rather short for his age but of good weight and color. Mentally he was very deficient. He could scarcely read. He showed no evidence of sexual feeling. He had no boy friends, indeed scarcely any acquaintances, because he always quarreled with them. He had frequent attacks of anger but was never sullen. His memory for remote events was good but for recent occurrences very poor. Some things he had done two days before he had no remembrance of. He was never cruel. He was clean in his person but careless in dress. He was entirely self-centered and showed no affection for his parents. He was physically lazy and took no interest in outdoor sports. In short he is to-day rather a high grade imbecile but I think the cause is some unusual and obscure form of organic brain disease. The whole course of his case has been slow and did not result from any acute infectious fever or indeed acute disease of any kind. There is no history of parental syphilis and he does not show any physical sign of it and bore anti-specific treatment only well enough to make that test of no value.

There is not time to discuss the occurrence of acute insanity in imbeciles. It is not infrequent and may come on at any age, but most usually at puberty or during adolescence. One of the most important of the mental diseases is hysteria. It is customary to arbitrarily separate it from insanity or to speak of hysteria and hysterical insanity as if they were two distinct things. As a matter of fact hysteria is a disease of the organ of mind quite as much as mania. In children it usually manifests itself by convulsions or by those curious affections of the larger joints. In my own experience I have more than once found it very difficult to decide in youths whether a given case was one of hysteria or the stuporous insanity of adolescence. In the rare cases of insanity which are seen at the very beginning when the patient will submit to careful ocular examination the character of the fields of vision is of great aid in making a diagnosis. In dementia precox the field of vision is normal or else almost normal at the beginning of the examination and rapidly grows smaller as the examination continues. There is never complete reversal of the color field and tubular vision is never present. In hysteria contraction of the fields, if present at all, shows itself at the beginning of the examination and, of course, reversal of the fields is common and tubular vision not very rare. Hysteria is not followed by dementia and, indeed, we may say that in youths the attack is practically always recovered from. The importance of hysteria at puberty is that it is a sign of danger to come later in life.

The proper treatment of insanity at puberty is prevention, in other words, education. When we pay more attention to teaching self-control and clean morals, when those whom Nature intended to lead a quiet life do not try to lead the strenuous life, and when parents get wisdom insanity will greatly decrease. But these things are in the very distant future.

LIPOMA OF THE PRETIBIAL TRIANGLE OF THE KNEE.*

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Behind the patellar ligament is a triangular space formed by the capsule and the tibia. The tubercle of the tibia, to which the patellar ligament is attached, is situated about an inch below the joint-surface and half an inch in front of it, since the tibia slants backward from the tubercle to the joint. The capsule runs upward and forward from the upper border of the tibia, and is inserted into the lower edge of the patella. The patellar ligament is thus entirely outside of the joint, and so is the triangular space, the lateral boundaries of which are formed by the strong expansions of the fascia lata, called the lateral ligaments of the patella. This rough triangle is loosely filled with fat, which gives the capsule room enough to fold up during extension of the leg and allows it to conform to the condyles of the femur during flexion.

* Read before Chicago Medical Society, 1905.

When it is not abnormally enlarged, this pad of fat can hardly be felt, and there is usually a slight hollow on both sides of the patellar ligament. After an injury, however, such as a bruise or strain, there may be a marked increase in the size of the fatty mass, possibly by the organizing of a blood-clot, or perhaps by a direct growth of the fat-tissue itself from the stimulus of the traumatism. This hypertrophy may not disappear, and may even increase gradually until flexion and extension of the leg are materially limited by the mechanical interference of this dense wedge of tissue. If the leg be forcibly flexed, the patellar tendon and its lateral ligaments or expansions are made tense and the pad of fat is compressed against the tibia and the condyles and forced out on both sides of the tendon, bulging outward under the more yielding lateral ligaments until the limit of compression is reached. If the leg be extended the notch between femur and tibia is narrowed and the pad is again compressed, though not so much as in flexion.

These motions, when carried beyond the self-established limits, are painful, and there is at all times a sense of unpleasant tension over the front of the joint. The interference with flexion is so marked in many cases as to cause serious disability. When the patient seeks advice he is apt to be treated for tuberculosis of the knee joint, the chronic swelling and the limitation of motion being responsible for the mistake. A careful examination will show that the limitation of extension is due, not to spasm of the hamstring muscles, as it invariably is in tubercular disease, but to a mechanical impediment, the hamstrings remaining relaxed.

An intracapsular effusion, such as is found in chronic synovitis, will be discovered above the patellar border, while the lipomatous pad never reaches above the level of the middle of the patella and there is present neither fluctuation nor floating of the patella.

A villous proliferation of the lower border of the capsule could be differentiated by the extent and peculiar feel of the villi.

A chronic bursitis of the small bursa lying under the insertion of the patellar ligament offers the greatest difficulty in differentiation unless fluctuation can plainly be elicited.

This lipomatous condition is much more common than is generally believed. The patients are mostly young and active men, who pay little attention to the slowly-progressing affection until it becomes a serious handicap to their working ability, and this usually takes five or six years.

As all of my cases preferred operation to more time-consuming methods, I have had no experience with the treatment by adhesive plaster strapping, or by the injection of such drugs as iodin or alcohol, which at best are uncertain.

The radical operation is safe and simple. A small incision two inches long is made just to the outer side of the patellar ligament. This is carried down through the strong fascia lata expansion, the so-called lateral patellar ligament, and the fatty mass is seen bulging up into the wound. This fat is seized with strong artery forceps and twisted out bit by bit, the twisting being far better than excision, because it prevents an annoying hemorrhage. The finger and forceps can readily be passed under the ligament to the inner extremity of the triangle, and no incision need be made on the inner side of the tendon. The reason for making the original and only incision on the outer side of the tendon is that if the lateral fascial ligament should fail to unite, there would be no tendency to the condition known as "slipping patella," which practically always occurs outward. After all the fat has been removed from the triangle, and all bleeding arrested, the fascia is carefully sutured with chromicized catgut in a separate layer, and the skin sewed with a subcuticular stitch of silkworm gut or wire. No drainage should be used. A sterile gauze dressing is applied and covered with a thick pad of non-absorbent cotton. A long posterior splint is bandaged on firmly, and the springy cotton makes sufficient pressure to prevent the oozing of blood into the triangle. The patient can be allowed to walk in a day or two, but the knee should be held stiff by the splint for ten days to allow the fascia to unite firmly. At the end of that time the splint is removed and the skin suture pulled out, and the leg can then be used freely.

The results in all my cases have been perfectly satisfactory, and the full normal range of motion has been possible as soon as the dressings were left off, even in the cases where great limitation had been formerly present. There has been no pain after the operation. If, through some misfortune, infection should occur, it would be entirely outside of the joint and could not endanger the mobility of the knee. I have not as yet attempted the operation under local anesthesia, fearing that the avulsion of the fat would cause too much pain.

100 State Street.

Special Article

IMMUNITY.

CHAPTER XVIII.

PRINCIPLES OF SERUM THERAPY.

In the strict sense serum therapy means the injection of antitoxic or antibacterial serums for curative or prophylactic purposes; this is passive immunization or direct serum therapy. Active immunization, in which the tissues of the individual are induced to form antitoxins or antibacterial substances as a result of vaccination or protective inoculations, may be considered as indirect serum therapy. We may, therefore, include the latter as one of the serotherapeutic measures.

Bearing in mind the significance of the terms active and passive immunization, and the fact that they may be used for curative and prophylactic purposes, the various procedures may be classified as follows:

I. PROPHYLACTIC INJECTIONS.

A. Active immunization, in which vaccination and protective inoculations are included, as with the organisms of typhoid, cholera and plague. Depending on the material injected, the result is the formation of antitoxins or antimicrobic substances (amboceptors); agglutinins are formed incidentally.

1. Inoculation of virulent organisms; antibacterial substances are formed. (*a*) Inoculation with small amounts of a virulent organism, i. e., of a non-fatal dose; used principally in experimental work. (*b*) Inoculation with virulent organisms into a tissue which has some natural resistance. The success of vaccination against smallpox by using virus obtained directly from the diseased, a method which was practiced in earlier times, was probably due to the fact that the virus found unfavorable conditions for the development of virulence in the skin. In some instances vaccination is more successfully accomplished by direct inoculation of virulent organisms into the blood stream (Kitt's method of vaccination against symptomatic anthrax).

2. Injection of attenuated infecting agents: Attenuation by air and light (chicken-cholera, Pasteur); by cultivation of the microbe at high temperatures (anthrax, Pasteur); by

chemical agents (anthrax, Roux; diphtheria and tetanus toxins, Behring and Roux); by desiccation (rabies, Pasteur); by passing the virus through other animals (swine erysipelas, Pasteur). This last observation was a most instructive one; passing the bacillus through the rabbit several times increased its virulence for the rabbit but decreased it for swine, while passing the organism through the dove increased its virulence for swine.

3. Injection of killed organisms (anthrax, Toussaint; swine plague, Salmon and Smith). This method is of the utmost importance in human diseases, as it is the safest means of vaccinating against cholera, typhoid and plague. In the Pasteur treatment of hydrophobia the first injection of the dried spinal cord probably contains the killed virus.

4. Injection of bacterial products. (*a*) Bacterial cell plasm (Buchner's plasmin, obtained by submitting the organisms to high pressure, and Koch's tuberculin TR). (*b*) Soluble bacterial products (the bacterial proteins, as Koch's old tuberculin and mallein; the soluble toxins; products of bacterial autolysis). When toxins are injected antitoxins are formed. The autolytic products of some organisms, e. g., typhoid and dysentery, cause the formation of bactericidal amboceptors and agglutinins, but not antitoxins.

B. Passive immunization: the prophylactic injection of antibacterial and antitoxic serums.

C. Mixed active and passive immunization; the simultaneous injection of an immune serum with the corresponding organism which may be killed or living. The serum increases the resistance of the animal at once and, in the meantime, a new and more permanent resistance develops which is due to the formation of antibodies. This method has been practiced with swine plague, swine erysipelas, rinderpest, and experimentally in typhoid, cholera and plague.

II. CURATIVE INJECTIONS.

A. Active immunization.

1. Injection of killed micro-organisms in small doses with the intention of hastening antibody formation (Fraenkel in typhoid fever); value not yet demonstrated.

B. Passive immunization.

1. With antitoxic serums: diphtheria, tetanus, snake bites, plague, tuberculosis (?), typhoid (?), streptococcus infections (?), etc.

2. With antibacterial serums: typhoid, cholera, plague, dysentery, streptococcus (?), staphylococcus (?) and pneumococcus (?) infections.

In general, serums to be effective must have a certain strength. When diphtheria antitoxin was first used preparations were put on the market which contained twenty or fewer antitoxin units per cubic centimeter, rendering necessary the injection of 150 c.c. or more in order to introduce 3,000 units. Much of the criticism which was offered at first was not because antitoxin injured the patients, but because it caused no improvement, the explanation of which lies in the low value of the serums used at that time. If diphtheria antitoxin now contains less than 250 units per c.c. it is considered unfit for use; many serums contain 500 or more units per c.c.

General Strength of Serums.

Antitoxic and other serums should, of course, be free from micro-organisms and toxins. The cases of tetanus which developed in St. Louis following the injection of diphtheria antitoxin will be remembered. With correct governmental supervision of the manufacture of serums such accidents are entirely preventable.[1]

For the sake of simplicity we may consider the principles involved in serum therapy under the three topics of antitoxins, bactericidal or antibacterial serums and vaccination.

It has been sufficiently emphasized that neutralization of toxin by antitoxin implies a chemical union between the two substances. When the two are mixed outside the body at a given temperature and at a given concentration, the rapidity and completeness with which the union occurs depends only on the degree of affinity which one has for the other. There is no third substance with which one or the other may unite. In the body, however, the conditions are more complex; in this case two combinations are possible for the toxin, one with the antitoxin which has been introduced and a second with the tissue cells. As an instance of the great rapidity with which toxin may unite with cells, the work of Heymans with tetanus toxin may be cited. "Heymans found that, if all the blood were removed from an animal a few minutes after the injection of a single fatal dose of tetanus toxin and the blood of another animal substituted, still the animal died of tetanus" (Ritchie); that is to say, all the toxin had been bound by the cells in that brief time.

Antitoxins.

Other experiments show that quantities of toxin and antitoxin which are neutral when mixed before injection are not entirely neutral if injected separately and at different points of the body. In this instance some of the toxin has had time to unite with tissue cells before it could come in contact with the antitoxin.

Experiments with Antitoxins.

Certain work by Dönitz illustrates not only the rapidity with which toxin may be bound by the tissue, but also the method by which antitoxin effects a cure. In relation to tetanus he found that if the toxin were injected first and the antitoxin four minutes later, a slight excess of antitoxin was required to prevent the development of tetanic symptoms; if he waited eight minutes, six times as much antitoxin; after sixteen minutes, twelve times as much; after one hour, twenty-four times the simple neutralizing dose was required. A few hours later no amount of antitoxin could save the animal. Similar conditions were met in the neutralization of diphtheria toxin by its antitoxin in the body. Madsen, in performing what he called "Curative Experiments in the Reagent Glass," found that the longer tetanolysin had been in contact with erythrocytes, the more antitetanolysin was required to tear away the toxin from the corpuscles. Practical experience with diphtheria also indicates that the longer the disease lasts the more antitoxin is required for cure.

The experiments just cited give us a clear conception as to what is meant by the curative action of an antitoxin—an action which consists not of the neutralization of the circulating toxin, but of the wresting away from the tissue of the toxin which has been bound. Incidentally the circulating toxin is neutralized, which is essentially a prophylactic process. For the wresting away of not a mere equivalent amount of antitoxin, but a great excess, is required, a condition which some have compared to the mass action of chemical substances.

When diphtheria or tetanus has advanced so far that no amount of antitoxin will effect a cure, the relation of the toxin to the cells has become something more than mere chemical union. Further processes of a biologic or biochemic nature have set in in which the toxin may have become an integral part of the protoplasm, and the toxophorous group may have begun its destructive action whatever the nature of this action may be.

Antitoxin and Toxin.

It is important to recognize that antitoxin can not repair an injury already done by the toxin. The repair of the injury depends on the recuperative power of the cells, hence antitoxin cures by tearing from the cells, perhaps not all, but so much of the toxin that less than a fatal dose remains in the cell.

We may learn from the experiments of Dönitz and of Madsen two important principles of antitoxic therapy: First, that of early administration, i. e., before a fatal amount of toxin has been bound, and second, the necessity of injecting a sufficiently large amount of antitoxin.

The comparative study of diphtheria and tetanus has clarified the principles of antitoxic therapy to no small degree. Knowing that diphtheria antitoxin has a much greater curative value than tetanus antitoxin, we find some conditions which would seem to explain the difference, at least in part.

In regard to tetanus we have the following facts: In the test-glass the affinity between the toxin and antitoxin is

1. See appendix to this chapter.

rather weak; since approximately forty minutes are required for complete neutralization (Ehrlich). On the other hand, the experiments of Dönitz and of Heymans show that the affinity of the toxin for nervous tissue is exceedingly strong, all the toxin being taken up within a few minutes. These two conditions alone suggest the probability of a low curative value on the part of the serum. The toxin of tetanus also has a remarkable selective action on the most vital of all organs, the central nervous system, hence a lower grade of injury may prove fatal than in other infections in which less important organs or those of greater recuperative power are involved chiefly. Furthermore, it is thought by some investigators (Meyer and Ransom, Marie and Morax) that tetanus toxin is taken up by the nerve endings and reaches the ganglionic cells by way of the axis cylinders. In this instance the toxin, to a certain extent, is isolated and perhaps less accessible to the action of antitoxin.

Tetanus.

Concerning diphtheria, the affinity between toxin and antitoxin is relatively strong, for complete neutralization in the test-glass takes place in about fifteen minutes (Ehrlich). Clinical experience indicates that the affinity of diphtheria toxin for tissue cells is less than that of tetanus toxin, for diphtheria may readily be cured on the second or third day of the disease, whereas a cure of tetanus is rarely effected. These would seem to be favorable conditions for successful serum therapy. Although the toxin of diphtheria may attack the nervous system as indicated by the development of paralyses, yet these are seldom fatal; and on the basis of anatomic findings in fatal cases it seems probable that the greater portion of the toxin is taken up by parenchymatous and lymphatic organs, and by connective tissues, which compared with the nervous tissue are of less immediate importance for life and have greater recuperative powers. We may infer from clinical experience that diphtheria toxin is so situated in the body that it is accessible to the action of the antitoxin.

Diphtheria.

We have, therefore, the following conditions which apparently are of importance for the success of antitoxic therapy: 1. The concentration (strength) of the antitoxin which is injected; 2, its freedom from contamination and adventitious toxins; 3, the time of its administration; 4, the quantity injected; 5, the degree of affinity between toxin and antitoxin; 6, the degree of affinity between toxin and tissue cells; 7, the amount of toxin which may be bound without a fatal issue, of which the vital importance of the organs involved and their recuperative powers are factors; 8, the location of the toxin in the body, i. e., its accessibility for the antitoxin.

Conditions of Importance for Success.

What has been said relates to the curative action of antitoxin. It is evident that the action of antitoxin, when used as a prophylactic, is of a simpler nature, for in this instance the conditions approximate those of the test-tube experiment. There has been opportunity for the antitoxin to become uniformly distributed in the blood and lymphatic circulations, hence it is able to meet and to bind the toxin before the latter comes in contact with the receptors of important cells. The high value of tetanus antitoxin as a prophylactic, a value which has become evident in recent years, probably depends on this condition.

Prophylactic Action of Antitoxin.

The immunity which is afforded by a prophylactic injection of antitoxin is of short duration, from two to three weeks; the antitoxin is excreted in the urine to a considerable extent, but may also be bound and assimilated by the tissues in part.

(To be concluded.)

Chinese Camphor Trade.—It is only in recent years that the Chinese have made an attempt to cultivate the camphor trees which abound in some provinces. *The Pharmaceutical Era* states that camphor first appeared as an export in the customs receipts in 1902 and that since then, and especially in the last year, there has been a considerable increase in trade.

Clinical Reports

THREE CASES OF TETANUS SUCCESSFULLY TREATED.

CARLOS C. BOOTH, M.D.
YOUNGSTOWN, OHIO.

A CASE OF TETANUS FOLLOWING ABDOMINAL SECTION. RECOVERY.

CASE 1.—A young man, aged 22, was referred to me by Dr. F. S. Merwin of this city, and I operated on him for tubercular peritonitis, complete recovery following. The case progressed in the usual manner, excepting that the patient had a slight rise of temperature. On the tenth day we opened the dressing and discovered a small stitch abscess, which was treated and dressed daily. On the twelfth day he began having slight twitchings of his muscles, and complained of difficulty in opening his mouth, which symptoms gradually increased until the tetanic convulsions became general and of the most violent character. On the seventeenth day, or the fifth day of the illness, we began using antitetanic serum three times daily. The spasm continued to be severe for a few days, and then became less frequent and less severe. After seventeen doses of 10 cm. each were given, his spasms ceased and complete recovery followed.

TETANUS FOLLOWING GUNSHOT WOUND. RECOVERY.

The following case was reported to the Mahoning Medical Society by Dr. Justice:

CASE 2.—Clayton M., 11 years old, shot himself with a toy pistol on July 4, 1904, in the center of the right palm. July 6 he was taken to Poland to the family physician, Dr. C. R. Justice, who removed the wad from the wound and disinfected it with peroxid of hydrogen, leaving instructions to let him know if the wound did not heal kindly. July 16 the boy was taken to the physician's office for the second dressing, when the wound was found inflamed and the boy very nervous and unsteady in his walk. Dr. Justice cauterized the wound with carbolic acid, and the patient went home. Dr. Justice was called to see him next morning at his home in Youngstown. I was called in consultation. I found that, to all appearances, the wound was partially healed. The masseter muscles were so rigid that the boy was not able to open his mouth widely. There was opisthotonos. He was lying on the bed and was very nervous, but had had no spasms. We had him sit in a chair where I could secure a better view of the wound. With firm pressure, I succeeded in squeezing a little secretion out of the wound. At this moment he had his first tetanic convulsion, which was a very severe one. We gave him chloroform and I incised the wound, which I found extensive beneath the surface and filled with gelatinous material, which I curetted out and thoroughly cauterized the cavity with pure carbolic acid. After the usual surgical dressing we put him to bed and he continued to have regular convulsions. Dr. Justice gave him, at this time, one-half ounce of antitetanic serum, and continued to do so every eight hours for three days. Owing to the distance of his residence from that of the patient, he doubled the dose, giving an ounce at a time twice a day for three days, the nurse at this time being afraid to use it. After this the nurse began to use it, and it was continued for five days, night and morning. The spasms occurred regularly for five days, he was free from them for one day, and then had one general but slight spasm, which was the last. The antitoxin was continued for a few days, using in all 54 half-ounce doses, and although so many doses were given in such large quantities in such a short space of time, only one small abscess formed from the injections. The masseter muscles were the first to become involved and the last to recover. Chloroform was used to relax the spasms when they were severe. To facilitate giving him nourishment, the patient was allowed to inhale a sufficient amount of chloroform to relax the muscles of the jaw. The patient is now in good health.

TETANUS FOLLOWING AMPUTATION OF THE THIGH. RECOVERY.

CASE 3.—Mr. A. B., aged 48, was brought into the hospital Nov. 17, 1905, with a badly lacerated thigh, having been run

over by a street car. The extremity was crushed at the junction of the middle and lower third. He had lost so much blood, and was so nearly exsanguinated that it was unwise to amputate at this time; therefore I thoroughly cleaned the wound, severed the crushed member, which was attached by skin only, tied up the stump with a wet antiseptic dressing, gave him an intravenous saline infusion, placed him in bed and waited for him to get into a condition for an amputation, which required two days and two more saline infusions. On the 21st I made a rapid amputation at the junction of the middle and lower third of the thigh. I found at the first dressing that one of the flaps had sloughed slightly, for some reason unknown to me; this caused a small suppurating surface. November 30 he complained of stiffness of the jaws, which continued for two days, when I gave him antitetanic serum subcutaneously three times a day. This did not cause any improvement, and on the fourth day, his back becoming rigid, the house surgeon, Dr. McCurdy, gave him an intraspinal injection of the serum. This caused some improvement which lasted for two days when I gave him another intraspinal injection, and repeated the same the third day. His condition being improved, although he had some little stiffness of the jaws remaining, he received no more serum, and made a gradual and complete recovery.

DISLOCATED THYROID CARTILAGE OF THE LARYNX.

FRANK W. SMITHIES, M.D.
CHICAGO.

Inasmuch as dislocations in this region are of such infrequent occurrence, the symptoms are so varied and the treatment so arbitrary, the report of this case should prove of interest and value.

History.—Patient, a male, aged 20, of slender but muscular build, an athlete, at the time of receiving this injury, was half-back on a local football team. He had previously been in good health, and had suffered no injury to the larynx or in the neck. While "bucking" the opponents' line, he was hit or kicked in the front of his neck. The blow rendered him unconscious for some minutes. On recovering his senses, he complained of much distress in his stomach, but did not vomit. He had a choking sensation in his throat, breathed with great difficulty, and could talk only in hoarse, low tones. He was unable to take further part in the game then in progress, but lay around for more than an hour, thinking that his condition would gradually improve. At the end of that time, as he became no better, I was called.

Examination.—The patient's face was flushed, pupils dilated, temperature 102, breathing stridant, respiration from 26 to 32 a minute. Speaking was very difficult, as the pain was very great on attempting conversation. The voice was a hoarse whisper. Anteriorly, the neck showed a noticeable flatness in the median line. Laterally, anterior to each sternomastoid muscle, was a prominence, that on the right side being more marked and somewhat lower than that on the left. The prominences moved when the patient swallowed, and their motion caused considerable pain. There was considerable swelling of the tissues in the region anterior to the sternomastoid muscle. The skin over the region of the larynx was not broken, nor did it show any marks of violence. The patient gave no history of raising blood, although he had coughed repeatedly since the accident. On palpation, there was great tenderness throughout the region of the larynx, especially when the lateral prominences were felt. It was apparent that the thyroid cartilage had been "sprung," as it were, from its seat on the cricoid. At the same time, there had been rotation in a vertical direction. The cartilage in question lay partially flattened out, anteroposteriorly, the prominences seen laterally proving to be the alæ of the cartilage. The vertical rotation had been from left to right, superiorly, causing the right ala to rest at a lower level than the left. The cartilage, as a whole, was capable of being moved considerably, but even the slightest motion caused the patient the most excruciating pain. On swallowing, the excursion of the cartilage, vertically, was less than normally. No crepitus could be detected along the anterior angle of the cartilage, nor did the two alæ move independently. The inferior border of the thyroid cartilage was about a sixth of an inch below its normal resting place on the cricoid. The latter cartilage did not appear to have been injured in any way. The fact that the patient was rather slender greatly facilitated the examination. The pulse was rapid, but strong and regular.

Laryngoscopic examination was very unsatisfactory, inasmuch as the patient could not bear to have the mouth open for any length of time. Coughing also interfered with the examination. It could be seen, however, that the epiglottis was normal and that the vocal cords were moving faultily, since the image on the throat mirror was very uncharacteristic.

Treatment.—This was mainly by position and by digital manipulation. The patient was placed in the supine position, with a pad beneath his head, in order to relax the muscles attached to the thyroid cartilage. Then, by careful manipulation, the cartilage was elevated to its normal position on the cricoid. At the same time, rotation was made vertically, from right to left, with lateral pressure on the alæ, synchronously, toward the median line, until articulation with the cricoid was felt. The entire region of the larynx having previously been painted with the tincture of iodin to aid in reducing the swelling of the cervical tissues, the position of the alæ was maintained by small pads of cotton held in place by adhesive strips. The position of the thyroid cartilage, as a whole, was then maintained by adhesive strips placed horizontally. The dressing was completed by a pad of cotton and a few turns of a wide roller bandage. The patient was instructed to remain in bed, on his back, to suck ice, to use his voice as little as possible, and he was placed on a liquid diet.

Progress of the Case.—After 24 hours the patient's condition had improved greatly. His fever had abated, his face was not flushed, the pupils were normal and reacted well, the voice was less hoarse. There was considerable pain on swallowing and on pressure over the alæ, externally. Examination showed that the position of the cartilage had been maintained. The nausea had disappeared and the patient was able to take as much nourishment as was allowed him. The swelling of the cervical tissues had decreased considerably. The treatment described was persisted in, frequent examinations being made to see if the reduction had been maintained. Within a week the swelling of the tissues had disappeared and the pain on swallowing had decreased markedly. The voice was still hoarse, but much stronger, and speech was not attended with much pain. At the end of three weeks the dressings were removed and the cartilage was found to be very nearly normally situated. There was but slight pain on pressure over the alæ. Vertically there was a slight dropping, but functionally it gave the patient no inconvenience. The patient's voice was still husky, but was gradually improving. At the end of five weeks the patient had practically recovered. It is more than six months since the accident and there has been no recurrence of the condition.

The Postoperative Uratic Sediment in Prognosis.—M. Claret, ex-interne at La Charité, following a suggestion of his chief, Dr. Campenon, has analyzed twenty-five cases of laparotomy, with special reference to the urinary sediments occurring within the first two days. He finds that, with one exception, the cases all followed a general rule, the fatal ones showing no sediment and a hypoleucocytosis, while the others, no matter how severe the infection, showed a sediment and a hyperleucocytosis, least in the milder cases and both greater in the severer ones. In the one exceptional case the patient died on the eighteenth day after complications, the uratic sediment, which was free in the beginning, disappearing very rapidly after the second day. The phosphatic deposits were normal in the fatal cases and only slightly increased in the others. He finds that these agree with experimental facts and deduces the following rule: "The appearance during the first twenty-four to forty-eight hours after laparotomy of an abundant uratic deposit will be a sure sign of favorable prognosis. Its absence should demand all reservations as regards prognosis of recovery."

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THE FREE DISPENSARY.

The proper conduct of the free dispensary has probably been a moot question since free dispensaries began, but the discussion usually turns on the extent to which the privileges of the dispensary are abused by persons able to pay for medical care and the extent to which, as one of our correspondents puts it, "young and struggling physicians are thereby robbed of cases which should properly fall into their hands." While we fully realize the importance of this aspect of the case, there are others of greater importance which are not generally recognized. We refer to the inferior character of medical service given in some dispensaries and the imperfect or defective training which the student receives even in some of the best.

Inquiries addressed to the secretaries of the boards of health of thirteen of our most populous states elicited the fact that in none of them is there state law or city ordinance regulating the dispensary. Hospitals are subjected to more or less regulation—in some cities the ordinances are almost oppressive—but the dispensary escapes all control, save such as is expressed in the general statutes regulating medical and pharmaceutical practice.

The fourteenth state to which our inquiry was sent, New York, has a law, passed in 1899, providing for the licensing by the State Board of Charities of dispensaries "which are supported, in whole or in part, by trust funds, public moneys or sources other than the individuals constituting the dispensaries." The recent report of the New York State Board of Charities on licensing dispensaries is at hand. It states that there were 123 licensed dispensaries in the state of New York Oct. 1, 1903, but makes no statement or estimate as to the number not covered by the provisions of the law. The report indicates an effort to improve the standard of proper administration as regards cleanliness and propriety, and shows that four dispensaries were closed within the year. In general, however, the New York law is directed mainly toward what the report calls "the social view," i. e., toward the prevention of fraud by well-to-do applicants, and scarcely touches what is to us the most important aspect of the case—the necessity for perfecting the medical service. The two objects of a genuine dispensary are the proper care of the sick poor and the practical training of medical students and physicians, and both are absolutely dependent on a high standard of medical supervision and service.

The legitimate clientèle of the free dispensary represents the most ignorant and helpless class of the community. They have no means of judging of the medical attainments of the staff of a dispensary, or even of knowing whether the young man who treats them is actually a physician or not. A large proportion of these people come from countries where public institutions are subjected to careful governmental regulation, and they are, therefore, accustomed to confide implicitly in such institutions. A German immigrant from Heidelberg would naturally visit one of our dispensaries for the first time, at least, with the same confidence with which he would apply to the dispensary of the medical school of the University of Heidelberg, where all is under the strictest governmental control, and the out-service is supervised as carefully by the medical staff of the university as the university hospital itself. Yet the only protection afforded here to the simple foreign peasant is a statute regulation—uninforced by any inspection—which requires that some licensed physician shall be attached in some capacity to the dispensary and that the drugs shall be dispensed by a registered pharmacist, although the requirement for a registered pharmacist is not universal. The laxity of the law encourages the growth of the "pseudo dispensary" whose insolent frauds are only too familiar; but that is a matter which belongs to the domain of criminal law. Our concern is with the functions of the true dispensary. It is needless to say that any dispensary which is worthless to the patient is equally worthless to the student.

Some of the medical school dispensaries are conducted on the most approved lines and offer, doubtless, as valuable training to the student and as reliable care to the patients as any dispensaries in the world. Of such we can only say, may they increase and possess the whole field. On the other hand, there is a large amount of dispensary indoor practice and out-practice to which the same criticism applies which we have previously had occasion to make in these columns on some free hospitals, i. e., it is undirected, superficial and irresponsible.

Undoubtedly patients will crowd to dispensaries, however many are opened, but no physician uses the excuse of a large practice as a reason for slovenly methods, and the dispensary can not defend superficiality by pleading that it has more patients than it can well handle. The interests of the public and of the profession would both be served better by restricting the number of patients to manageable proportions. There is a type of dispensary too common in every great American town which starts with a laudable humanitarian spirit and fair medical standards, but which quickly degenerates, usually from lack of funds and inattentive management. The physicians in charge of the clinics are busy men, with constantly increasing practices. They attend the clinics irregularly, and in their absence students assume charge. The out-practice, at first limited in amount and care-

fully controlled, increases to unmanageable proportions and falls completely into the hands of the students. In some supposedly respectable dispensaries, illegal young practitioners are not even required to keep records of their cases, but pursue their way without the slightest guidance or control.

Such dispensaries not only tend to bring discredit on the profession; they also fail to give the student the educational training which they profess to afford him, and, last but not least, they fail to give to their clientèle the medical care which they ostensibly offer. It is time that we considered with care some reasonable method of regulating dispensaries.

PERFORATION IN TYPHOID FEVER.

The subject of perforation in typhoid fever is one of perennial interest, and of late years has been much to the fore on account of the renewed interest in its surgical aspects. From time to time analyses of the factors bearing on the subject have been made, and the published results usually show variations, at least in detail. In a disease like typhoid, which varies so much from year to year, it is necessary to analyze large numbers of cases, collated from various sources, in order to obtain an idea of the mean natural history of the disease. It is always of interest, therefore, to study new reports and to compare them with previous ones.

Recently Scott[1] has published some interesting facts bearing on perforation, collected from the records of the Pennsylvania Hospital. A study of his figures shows that this complication is more common than is generally stated to be the case, as at least one death in four is due to it. It seems to be less common in European countries than it is in the United States, Canada, Australia, or England, though why is not apparent. According to the census statistics of 1900, Scott figures that 8,884 deaths from perforation occurred during that year, and that 2,211 of these might have been saved by operation, considering the mortality from this to be 75 per cent. The great majority of perforations occur between the second and the fifth week, and the cases reported as occurring very early are probably perforations during a relapse. In nearly all instances, the perforation occurs in the ileum, though appendiceal perforations are by no means uncommon. Most of them are small, circular, and pin-point in size, and are evidently due to gradual erosion through the base of an ulcer; a few, due to separation of large necrotic patches in the wall of the intestine, are much larger.

The diagnosis of perforations has always been difficult and a question of discussion. The remark made by Osler, several years ago, that the symptoms usually described as those of perforation are, in reality, those of peritonitis has doubtless led to more careful study of the early symptoms in this country. Pain, tenderness, and rigidity are the three important symptoms, though any or all may be present. Pain of some sort is present in about three-quarters of the cases, and sudden severe pain in half of them. Tenderness is present in about the same proportion of cases as pain, and rigidity in almost as many. Some of the signs emphasized in the older writings, as distension and loss of the liver dullness, are shown by Scott's figures to be unreliable, and hemorrhage is not so frequent an accompaniment as is often thought. The recent sign said to be of great importance by Goodall, shivering and chilly sensations, is of little value unless accompanied by corroborative signs. The most important thing to be looked for in the temperature chart is a sudden rise followed by a slow fall, and the temperature changes may not be detected at all with the ordinary three- or four-hour chart. The blood picture, much vaunted four or five years ago, is now stated to be of no great value. There may be an actual fall in the leucocytes, and the general consensus of opinion now is that perforation, like other inflammatory complications of typhoid fever, is apt not to be accompanied by leucocytosis on account of the bone marrow changes which accompany the disease.

On reading Scott's report, one is impressed with the fact that in typhoid perforation, as in all conditions difficult of diagnosis, we must depend on collections of symptoms and signs, and not on isolated ones. Most of us are fond of short cuts to knowledge, and it would, of course, be of great advantage to the patient if there was a pathognomonic symptom or sign for every disease and every complication. We constantly meet those who seem almost to think that this is so, men who will not diagnose a case of typhoid fever because the patient has not a typhoid tongue, and men who call every chill malaria. While the search for pathognomonic signs is a worthy one, we must not forget that there are very few of them yet, and the study of conditions like typhoid perforation should show us the great necessity of learning to put together the separate pieces which constitute the Chinese puzzle of diagnosis.

1. Univ. of Pennsylvania Med. Bull., xviii, No. 3.

THE FREQUENCY OF TUBERCULOSIS.

In the last few years, the belief has prevailed that tuberculosis infection is all but universal and that, in civilized countries at least, practically no one escapes "without a smack of consumption." The German saying, *"dass Jeder ein bischen tuberculos sei,"* well expresses the general feeling. The recent strengthening of this more or less widely held popular opinion has been due principally to the work of Naegeli and Franz.

Naegeli[1] in a series of several hundred minute and exhaustive postmortem examinations at the Pathological Institute in Zurich found lesions regarded by him as tuberculosis in over 97 per cent. of the bodies of adults. Subsequently Burkhardt[2] announced very similar results obtained by him from material examined at the Dresden Pathological Institute. The much-

1. Virchow's Arch., 1900, vol. clx, p. 426.
2. Münch. med. Wochft., 1903, No. 29.

quoted work of Franz[3] on the application of the tuberculin test to apparently healthy Austrian soldiers showed that a positive reaction was obtained in over 60 per cent. of the number examined.

Kraemer[4] has now subjected the work of these authors to a searching and destructive criticism. He points out that the results obtained by Naegeli and Burkhardt are at variance with those reported by other investigators, notably by Orth, whose observations are recent and cover a period where owing to the general interest in the subject and to other causes special attention was presumably given to the occurrence of tuberculous lesions. Orth found evidence of tuberculosis in only from 27 to 28 per cent. of 1,087 autopsies and his results thus contrast markedly with those of Naegeli and Burkhardt. Kraemer cites other data also at variance with the Zurich and Dresden figures, and argues that they should prevent an uncritical acceptance of the universal infection doctrine.

The divergence in the results obtained by skilled and experienced observers is considered by Kraemer to depend partly on the difference in the locality in which the observation was made, partly on the mistake of invariably assigning certain pathologic appearances to a tuberculous origin. In a discussion of the influence of locality on the autopsy statistics, he calls attention to the peculiar character of the material handled by Naegeli, comprising as it did a large proportion of factory workers, especially of those in the textile industries. The relatively high percentage of tuberculosis in the dust-breathing occupations is well known. In the same connection, remark is made of the inevitably selected character of the material coming to inspection in an urban pathologic institute, there being many factors tending to swell unduly the proportion of tuberculous infected persons as compared with the number in the community at large. Kraemer also questions the propriety of identifying on anatomic grounds a certain class of lesions as tuberculous. Here he succeeds at least in making evident the need of fuller data, and in opening the way for a still more exhaustive investigation than that of Naegeli.

A similar analysis of Franz's tuberculin investigation follows. It is stated that in the frequent references to his work (61 per cent. of positive tuberculin reactions among 400 apparently healthy recruits from Bosnia and Herzegovina) the fact is overlooked that the regiment examined was chosen for the specific reason that it had had for several years the largest proportion of tuberculous cases. The assertion is also made that Franz himself had no thought of interpreting his results as a measure of the amount of tuberculosis in the whole community. The shortcomings and sources of error in the tuberculin test are then entered into by Kraemer in some detail, and finally the surprising fact is brought out that in this whole field of investigation there is practically nothing on which to institute a comparison with Franz's work. His inquiry stands alone as the only research of import into the frequency of a positive tuberculin reaction among presumably normal individuals. The superior value of the tuberculin test as a means of shedding light on the question at issue should stimulate further investigation in this direction.

Kraemer concludes that the assumption that every adult harbors in his body an active or a burned out tuberculous focus is not yet warranted by the evidence at our command. Conservatively stated, the question of the frequency with which human beings become infected with tuberculosis is not yet solved, owing partly to the meagerness of the observations hitherto made, partly to their being limited to certain localities.

3. Wiener med. Wochft., 1903.
4. Zeits. f. Hyg., 1905, No. 50, p. 265.

SIR JOHN SIBBALD.

The recent death of Sir John Sibbald, late member of the Scotch Lunacy Commission, causes profound regret to all who knew him. He was a person of singular worth and singular modesty and we think it fitting to commemorate his services in developing the care of the insane, not alone because they are important and permanent but because his life presents a fine ideal of what a man and a physician ought to be. Sir John Sibbald became superintendent of the Argyle Asylum, and during the seven years he remained there he courageously adopted all the most progressive ideas of the day. He was the first man in Great Britain to tear down the walls of the old prison-like "airing-courts" and to substitute free exercise and employment. His patients became more orderly and less subject to tuberculosis. All the Scottish asylums followed his example in this and other respects and to-day the visitor will probably find the Scottish institutions for the insane the freest and most homelike that he can see the world around.

Sir John became deputy commissioner in 1878 and in that capacity had much personal experience with the Scottish system of boarding-out quiet chronic insane and he became an earnest advocate of such care. He studied it carefully in several continental countries, wrote valuable discussions of its various phases and became known as the greatest English-speaking authority on the subject. In this connection, it is interesting to note that the New York State Lunacy Commission and the New York State Charities Aid Society now urge the boarding-out of quiet insane, as a relief from the crowding and expense of the present system in that state.

Sir John was a member of the commission for twenty-one years until his retirement for age in 1899. His patient apprenticeship, his long tenure of office, free from politics, as well as his wisdom and manliness and tact suggest the reason for the world-wide prestige enjoyed by the Scotch Lunacy Commission, which has

had the services of men of his calibre. By the same tokens is pointed the moral of the inevitable failure of too many apparently similar boards in this country.

When all the American states offer to their talented sons the same opportunities for public service which Scotland affords, then we may hope that the spirit and devotion of such men as Sir John Sibbald will not be lacking here. We need men who are willing to devote themseves to the humdrum routine of administration, and who can do it in the spirit of modern science. Sir John had the scientific mind, careful, methodical, and thoroughly trained, and his views were those of a scientist; yet it is noteworthy that the improvements he chiefly urged were on the humanitarian side; such as freedom and simplicity in the institution, simple home life in the villagers' families for suitable quiet patients, separate wards in general hospitals for acute and transitory cases, etc. It is this humanitarian view which we must recognize as being also the scientific view in the modern care of the insane. Dr. Sibbald was knighted for his public services, on his retirement from the commission.

THE PURE-FOOD CAMPAIGN.

If we are to have rational and necessary pure food legislation by the next Congress, the medical profession must join actively in the education of the public. With the commercial interests arrayed on both sides of the contest, the layman has small opportunity to glean the real truth from the mass of documentary ammunition (so-called "literature") that is weekly being hurled from one camp into the other. Many periodicals are giving space to contributions of greater or less value, but, as we have before noted, some of the statements are wildly exaggerated. Recent issues of *Public Opinion* and of a little Chicago publication, *What to Eat*, contain articles purporting to support the pure food movement, but really well calculated to furnish munitions of war to the already well-supplied opposition. The use of intemperate terms in such a cause as this is greatly to be regretted; for example, "thieves and robbers," "heinous custom," "poisonous, nerve-racking, baby-killing food." The public is gravely told that "visible signs of degeneracy" are increasing in the Gulf States and that the one cause is "deplorable foods." It is also told that the market contains foods made from "factory refuse and street sweepings," and that the "meat of diseased horses and mules" is sold for beef. The real animus of these articles appears to show in these expressions: "Our proposed law . . . is unique only because of its originality" (*sic*) and "there have been many grave charges to the effect that the food bill now pending was drafted for the benefit of the so-called whisky trust." Not much benefit to the pure food cause can come from the following gems: "The germs of the human system," "certain germs are absolutely essential to life and health," "the entire organism of the human system is composed of different kinds of germs," "there are two kinds of germs in the human system continuously at war with each other," and "when the disease germ overpowers the health germ the individual will die." The honest advocate of pure food may well cry: "Save us from our friends!" To all appearances a most subtle attempt is being made to discredit the cause by a systematic series of attacks from the rear. Physicians, however, having well in mind the true merits of the case, are in position entirely to frustrate this scheme, as they come in contact with those who may read these exaggerated articles.

NEWSPAPER MEDICINE.

Many newspaper excursions in the medical field are funny in the highest degree, while others are merely sensational. Of the latter class are articles recently appearing under the captions, "Death in the Money Hunt," and "Hearts Fail; Graves Fill." These "scare heads" were based on the publication of figures, apparently showing in New York City a great recent increase in mortality, especially from heart disease. Possibly, on careful study, the figures, if confirmed, may prove to have some significance, but it is much to be desired that at least the good newspapers might come to deal with medical and sanitary matters in a common sense manner, entirely excluding sensationalism from their treatment of these subjects. By adopting such a course, they might do much good. As it is at present, any possible benefit is swamped in the flood of sensational overstatement. Who will lead the way in an effort to win over the daily press to rational and helpful methods? It is a great task for a great man, but a good result must entirely depend on impersonal methods. In many county societies the work has been begun by "press committees," that furnish the papers with timely articles on medical topics, which are signed impersonally.

CHICAGO'S COMMISSIONER OF HEALTH.

In the exigencies of politics, it seems to have been necessary, in the mind of the new mayor of Chicago, to remove Dr. Reynolds from the position of commissioner of health. The position, in a community as large as Chicago, is of immense importance, the growth of a city —financial, business and numerical—depends on the health of its people, and this on the enforcement of hygienic laws as they apply to municipalities. To fill the position successfully requires that knowledge which can only be gained by experience, and no change should be made unless for the good of the service. Dr. Reynolds has been commissioner for ten years, the last eight years consecutively. To him must be given credit for building up a department of health that is a credit to Chicago and for systematic education of the public resulting in lessened mortality and morbidity rates. Chicago's statistics have been systematically developed so that from its reports have been learned much of value in regard to municipal sanitation and mortality and vital statistics. We sincerely hope that the good work may go on under the new commissioner, whom we wish success. A high standard has been set for him to follow. We hope that he may even surpass the achievements of his predecessor in this field of so great opportunity for civic usefulness.

INSURANCE AND MEDICAL DEFENSE.

Some comment has followed the recent action of a large insurance company in discontinuing its physicians' defense contract. No reason for this withdrawal has been given, though the natural presumption is that the business, at least for that company, proved unprofitable. There yet remain five general casualty companies that issue these contracts and one company devoted solely to this form of insurance. According to *The Chronicle*, an insurance weekly, the company that confines itself to this field issues a contract providing indemnity only for legal services incurred by a policy holder who is sued for malpractice. On the other hand, according to the same authority, the general casualty companies that solicit this business offer a contract that indemnifies for damages up to a certain figure as well as for legal expenses of defense. Unless other companies withdraw their contracts it will appear that some of them still find the risks profitable and that the medical profession does not lack opportunity for insurance against the loss and annoyance of these disagreeable suits. The company that has withdrawn its policy is the same that met with an unfavorable opinion from the attorney-general of Iowa, as noted in THE JOURNAL, April 1, 1905, page 1040. In this connection also should be read a letter published in THE JOURNAL, April 22, 1905, page 1296, showing that indemnity for damages appears to violate law and ethics, while indemnity for defense does not.

OPEN TREATMENT OF BURNS.

The classical method of treating burns has generally involved the idea of exclusion of the air, even before the bacteriologic discoveries of the past thirty years had made air infection a matter to be so seriously considered. Dr. Sneve's paper in this issue of THE JOURNAL, with its advocacy of a diametrically opposite method, will, therefore, attract some attention, as the old ideas are still largely extant. His results in the cases he reports are striking and there is much force in his arguments in favor of the open method. He calls attention in particular to the short duration of the pain in cases thus treated, though this seems contrary to the older ideas on the subject. Theoretically, there is nothing against the chances for good recovery in cases in which the open method of treatment is used, except the possibility of air infection, provided, of course, that the external temperature is properly regulated and that surgical cleanliness is maintained. Burns do not heal by first intention, sloughing and eschars must be expected in severe cases, and, while we can no longer speak of "laudable pus," we can not deny the beneficence of the scab. This very much abused term simply signifies Nature's method of healing many lesions, and nowhere so usefully as in burns. According to Sneve's experience, the usefulness of the crust or scab is evident, and the results in his cases seem to be better than by other methods. When suitable conditions, the proper regulation of external temperature and close surgical oversight, etc., can not be obtained, the older methods of treating these accidents are better, but in selected cases the open method is worthy of a thorough trial, and if the experience of others coincides with that of Dr. Sneve and his colleagues we may expect its general use in the near future. If the open treatment is good for wounds, as some have claimed, its use is still more rational for burns.

A NEW OCCUPATION DISEASE.

A Buffalo physician finds that contiguity to electric generators of large capacity, such as those at the Niagara power works, has a decidedly bad effect on the physique of those employed, especially in producing digestive disorders and their consequences. Exactly how this is to be accounted for he does not venture to say, but suggests that there may be something in the waste electric current, some special set of rays perhaps. He offers as a sort of collateral evidence that may bear on the subject the very quick souring of absolutely fresh milk under the same conditions as those in which the men work, as he has demonstrated by direct experiment. Electricity is a force of which as yet we have very imperfect knowledge in many respects, and it is quite within the range of possibility that, with the high concentration and quantity that must be constantly acting on the surrounding mediums in such extensive power works as those at Niagara Falls, some pathologic effects might be developed. That it has not been observed elsewhere to some extent is not unaccountable. There are few places, if any, where such phenomena are as likely to be impressed on the casual observer as at Niagara Falls, but the facts he gives should suggest investigations in power plants elsewhere. It may be that what is in such excess pathologic might be directed by proper appliances to some valuable therapeutic effect, and the wastage that is altogether harmful at present be rendered of some utility for human health. This, however, is only a conjecture and, perhaps, not a practical one. In any event, the observation, if verified, is of interest as revealing a new form of occupation disease.

SYMPTOMS DUE TO THE PRESENCE OF CATS.

It does not seem unreasonable to believe that the several varieties of sensibility—tactile, painful, thermal, gustatory, olfactory, auditory, visual—are but higher differentiations of a fundamental form, namely, common sensation. Impressions may be conveyed through any of these channels without the intervention of consciousness, but in that event there is a lack of perception. On the other hand, the impression may be of such a delicate and intangible character that the particular channel through which it reaches the sensorium may not be readily discernible. In some such way as this must be explained the knowledge of the presence of another person or the not uncommon recognition without the aid of vision that one is being looked at. Perhaps information under such circumstances is conveyed through nerves of common sensation. It may also be that an impression is made on the olfactory or auditory nerves. Some interesting observations along this line have recently been recorded by Dr. S. Weir Mitchell,[1] in a paper in which he refers to an hysterical woman in

1. Amer. Med., May 27, 1905, p. 851.

whom a fear of cats had become an obsession and who declared that she could always detect the presence of an unseen or unheard cat. To designate the state of cat-fear, Dr. Mitchell employs the term ailurophobia. A collective investigation of the subject was undertaken, as a result of which it appears that a not inconsiderable number of persons exhibit, in the presence of a cat, various phenomena, such as fear, terror, disgust, chilly sensations, horripilation, weakness, trismus, rigidity of the arms, pallor, nausea, vomiting, convulsions, temporary blindness. In a large proportion of the cases, the manifestations make their appearance even when the animal is not seen or heard. In a small number of these, the individuals were conscious of the odor of the animal, while in the remainder they were entirely unaware of the manner in which they recognized the presence of the offending cause. In the latter, likewise, it seems most probable that the recognition is due to odorous emanations appreciable to a sensitive nervous system, but not as an olfactory impression. Asthmatic symptoms develop in some persons in the presence of cats and of other animals, and the same phenomena have been observed in those exposed to the emanations from hides and furs.

Medical News

CALIFORNIA.

Commencement.—The College of Medicine of the University of Southern California, Los Angeles, held its twentieth annual commencement June 13. A class of 23 received degrees from President Bovard of the university, and Dr. George Dock, University of Michigan, Ann Arbor, delivered the doctorate address.

New Hospital for Stockton.—The new emergency hospital erected by Mr. and Mrs. J. H. Hough in memory of Henry Harpur Hewlett at a cost of $30,000, was formally transferred to the city of Stockton June 5. Dr. Ira B. Ladd has been appointed surgeon to the hospital. The first patient was received June 15.

New Society.—It is announced that the Medical Society of the State of California was incorporated June 16. The directors are one regular practitioner and four eclectics. It is stated that the society is not formed for pecuniary profit, but for charitable and social purposes, to establish free clinics for the poor and to bring together practitioners of all schools in California.

Personal.—Dr. Joseph Marshall Flint, San Francisco, has sailed for Europe. He expects to spend two years in Breslau with Prof. Dr. Mikulicz.——Dr. Alfred E. Regensburger, San Francisco has returned after an extended trip through China and Japan.——Dr. Samuel S. Bogle, Santa Rosa, has been elected health officer of Sonoma County.——Dr. Harry S. Gossage has been elected secretary of the board of health and health officer of Petaluma.——Dr. Thomas F. Taylor, Geyserville, fell June 7 and dislocated his right arm at the shoulder.

ILLINOIS.

A Medical Novelty.—The International Association of Medical and Surgical Specialists has been incorporated by a homeopathic practitioner who announces himself a "mem. active or honorary of many state, national and foreign med. and scientific socs.," an oculist and a dentist. The object is stated to be to advance the interests of all men in the medical profession from general practitioners and specialists to osteopaths.

Newly Revised Circular on Consumption.—The State Board of Health has just published the fifth revised edition of its circular on consumption. Much new matter has been added, making this edition of increased value to consumptives. A special appeal is made to philanthropists to give financial aid to consumptive patients who are too poor to properly care for themselves, this appeal concluding:

No better opportunity for practical charity ever existed; no greater privilege was ever offered than is held out to him who would provide the means for the poor consumptive to regain his health and to face the battle for life and for existence on an equal footing with his fellows. Those who are giving fortunes for the advancement of education, of science, or art and even of religion will do well to pause and consider if saving the life of our fellow man and restoring him to the helpless ones dependent on him, is not a nobler and a better thing than the elevation of culture to its highest plane or the carrying of learning to the natives of foreign shores.

Chicago.

Physicians on School Board.—Dr. Cornelia B. De Bey has been appointed, and Dr. Wladyslaw A. Kuflewski, reappointed a member of the Board of Education.

Emergency Hospital.—The formal opening of the Chicago Emergency Hospital, 309 Fifth Avenue, occurred June 27. Dr. Richard M. Fletcher is surgeon-in-chief.

Personal.—Dr. Alice Hamilton has gone to Europe.——Dr. George F. Suker has returned to Chicago and has resumed his work as professor of ophthalmology in the Chicago Postgraduate Medical School.

June Health Good.—June health continues to improve as the month draws to a close. The mortality rate for the week ended June 24 was 439, or 11.49 per 1,000 annually, and this is only slightly in excess of the lowest on record, that of June, 1904.

Communicable Diseases.—Except smallpox, all the contagious and infectious diseases show a decrease in the number of cases reported—diphtheria most marked, 28 cases during the week, as against 36 the week before. There were 18 cases of smallpox discovered, as against 15 during the week of June 17.

Visitors En Route to Portland.—During the past week many parties of physicians and their friends who were passing through Chicago on their way to the Portland session have called at the American Medical Association building. Monday, Drs. Frederick Holme Wiggin, New York, and Cyrus Lee Stephens, Athens, Pa., escorted a party of between 80 and 90 who were traveling on the New York and Philadelphia special train, which was mentioned in THE JOURNAL June 3, page 1775, the names of most of the members of the party being given there. On Tuesday a number from Boston called. This party occupies a special car and is to stop in Colorado and California, and will return to the East by the Canadian Pacific. Among those in this party were: Dr. J. Collins Warren, Dr. John Warren, Prof. Thomas Dwight, Dr. and Mrs. M. H. Richardson and daughter, Dr. and Mrs. John C. Munro and son, Dr. F. C. Shattuck and daughter and friend, and Dr. R. F. Oneil of Boston, and Dr. G. Ben Johnston, Dr. Christopher Tompkins, and Dr. L. C. Bosher of Richmond, Va., and Dr. Julia Tolman of Arlington, Mass.

Dr. Reynolds' Valedictory.—Dr. Arthur R. Reynolds, in his final bulletin as commissioner of health, in summing up the results of his ten years' service, remarks on the purpose of the labor of a health commissioner and on the honor that falls to one who can demonstrate that he left his city healthier than he found it. He gives the following demonstration that Chicago is to-day a much more healthful city than it was found a dozen years ago:

Its death rate during 1893 was 212 in every ten thousand of its population of all ages. In 1904 the rate was 136 in every ten thousand. Improvement in general healthfulneess—36 per cent.

In 1893 there died 8,125 infants out of 32,954 living under 1 year of age—a rate of 246 per thousand. Last year, out of 40,578 living under 1 year, there died 5,125—a rate of 124 per thousand. Reduction of infant mortality—50 per cent.

In 1893, out of a child population of 121,564 living between 1 and 5 years of age, there were 4,328 deaths—a rate of 35 per thousand. Last year, out of 162,315 children living at this age-period, there were 2,027 deaths—a rate of 13 per thousand. Saving of child-life—64 per cent.

In 1893 the aggregate ages of the 27,083 individuals who died during that year amounted to 617,492 years, or an average of 22.8 years each. In 1904 the aggregate ages of the 26,311 decedents footed up 855,107 years—an average of 32.5 years each. Increased duration of life during the last twelve years—42.5 per cent., or an increased "expectation of life" of 9 years and 9 months for every man, woman and child living in Chicago.

IOWA.

New Hospital for Carroll.—St. Anthony's Hospital, Carroll, erected at a cost of $60,000, was formally opened June 15.

Tuberculosis Lectureship Established.—The State University College of Medicine, Iowa City, has established a lectureship on tuberculosis and has appointed Dr. John W. Kime, Fort Dodge, to the position of lecturer.

State Health Officers.—At the annual meeting of the Iowa Association of Health Officers at Iowa City, June 13, the following officers were elected President, Dr. Louis A. Thomas, Red Oak (re-elected); vice-president, Dr. George P. Neal, Fort

Madison, and secretary and treasurer, Dr. Cassius T. Lesan, Mount Ayr. A midwinter meeting will be held in Des Moines in January, 1906, and the annual meeting in June at Waterloo.

Personal.—Dr. Harvey G. Hieber, Cedar Falls, is studying in Vienna.——Dr. and Mrs. Henry Albert, Iowa City, sailed from New York June 15 on the *Friederich der Grosse*.——Dr. Oscar C. Wilhite, Cherokee, has been appointed superintendent of the new state hospital for inebriates at Knoxville, which will open in September.——Dr. James J. Ransom, Burlington, has returned from Europe and has gone to Vermont for the summer.

Warning.—Subscribers to THE JOURNAL and members of the American Medical Association in Iowa are warned against paying subscriptions or dues to any unauthorized individual. A Des Moines physician who was induced to give such a person a check for his annual dues, describes him as a "seedy-looking individual and evidently a victim of alcohol or morphin or both." He was very anxious to have the dues paid in cash, but our correspondent was prudent enough to give him a check which has not yet been presented for payment.

MARYLAND.

Personal.—Dr. John W. Lacy, Lisbon, sailed for Liverpool on the *Oceanic*, June 6.

New Doctors.—On June 21, 124 candidates presented themselves for examination by the State Medical Board, including one negro, a graduate of the Medical-Chirurgical-Theological College of Christ's Institution, heretofore mentioned in these pages.

Baltimore.

Hospital Incorporated.—Good Samaritan Hospital and Dispensary was incorporated June 20, without capital stock.

Children Transferred to Summer Home.—The fifty patients of the Hospital for Crippled and Deformed Children were transferred to the summer hospital in the Blue Ridge Mountains, June 22. There they are quartered in Army hospital tents, each holding twelve.

Personal.—Dr. Arthur M. Shipley has been re-elected medical superintendent of the University Hospital.——Drs. Hugh W. Brent and E. Hansen, late residents in the same hospital, are spending the summer in Scandinavia.——Dr. Edward Janney sailed for Genoa on June 17.——Dr. John C. Hemmeter received the degree of LL.D. at the commencement at St. John's College, Annapolis, last week.——Dr. L. Ernest Neale delivered the address to the graduates at Loyola College, Baltimore, June 22.——Dr. Ira Remsen, president of Johns Hopkins University, has left for Northeast Harbor, Maine, where he will spend the summer.——Dr. Harry Friedenwald will leave for Europe July 13, to be gone two months.——Dr. Friedenwald was elected president of the Federation of American Zionists at its meeting in Philadelphia, June 20.

MASSACHUSETTS.

Fewer Need Help.—The board of overseers of the poor in Boston spent $114,205 in 1904, aiding 2,248 families, as against 4,403 in 1884.

School Closed—As 20 cases of diphtheria occurred among the 700 pupils of the Adams school, Quincy, the building has been closed for the rest of the term.

Tuft's College Commencement.—Tuft's College granted twelve degrees in medicine June 20. Of the nine degrees "cum laude," five were awarded to young women out of a total of twelve in the class.

East Boston Hospital Hopes Raised.—Hopes of a hospital in East Boston are again revived by a conference between the mayor and the trustees of the City Hospital. It is likely that a relief hospital will be the outcome, to be conducted like that in the North End, as a branch of the main city institution. The expense of building and maintaining such a station would be much less than that of the larger permanent hospital authorized by the state legislature.

City Physicians of the State.—The City Physicians of Massachusetts have formed an organization and held a banquet June 20 in Boston. The officers of the temporary organization are as follows: Dr. Edwin P. Gleason, Brockton, president; Dr. George L. Black, Lawrence, vice-president; Dr. William D. McFee, Haverhill, secretary and treasurer, and Drs. Henry C. Hallowell, Quincy; F. N. Murphy, Taunton, and Thomas E. Caulfield Woburn, executive committee.

Gubernatorial Appointments.—The governor has made the following appointments: Dr. William N. Bullard, Boston, trustee to the Hospital for Epileptics; Dr. Samuel G. Webber, Boston, trustee to the Hospital for Dipsomaniacs and Inebriates; Dr. Andrew H. Hodgson, Dedham, medical examiner of Norfolk County; Dr. John C. Irish, Lowell, medical examiner of Middlesex County; Dr. Everett M. Bowker, Brookline, associate medical examiner of Norfolk County, and Dr. Harry M. Cutts, Brookline, medical examiner of Norfolk County.

MISSOURI.

St. Louis.

Mayor vs. Health Commissioner.—Charges were filed June 26 by Mayor Wells of St. Louis against Health Commissioner Dr. John H. Simon with seven counts, alleging failure to devote his entire time to the work of his office, neglect of duty, willful abuse of official power, annoying and harassing superintendents of city institutions, etc.

Skin and Cancer Hospital.—A skin and cancer hospital will shortly open. It is intended to make the research idea prominent in the conduct of the institution. Dr. Martin F. Engman is credited with having originated the idea of the establishment of this hospital. It will be located corner of Jefferson Avenue and Locust Street in the hospital building formerly used by Dr. H. Tuholske.

City Hospital Open.—The new City Hospital of St. Louis is now open. The patients from the old building are being moved to the new. The isolation ward will be used temporarily as the administration building until the building for that purpose, now in course of erection, is finished. The new hospital is modern in every particular. It is four stories high and will accommodate 400 patients without crowding.

NEW YORK.

Hospital Incorporated.—St. Joachim's Hospital, Watertown, "to nurse and care for the sick and injured," was incorporated June 16.

Endows Memorial Bed.—Mrs. James R. Willets has given $3,000 to the Nassau Hospital Association to endow a bed to be known as the James R. Willets bed, in memory of her husband.

Pure Food League Incorporated.—The National Pure Food and Drug League was incorporated at Albany on June 19, to work for pure food, drugs and beverages by moral and legal methods. The principal office will be in Albany.

Stony Wold Sanatorium.—The fourth annual report states that 68 patients have been restored to their places in the world as wage earners as the result of the treatment employed at Stony Wold last year.——An entertainment given by the Junior Auxiliary at Ardsley has netted $800 for the sanatorium.

Milkmen Alarmed.—About thirty milk dealers awaiting trial in the Court of Special Sessions were considerably alarmed when it became known that one of their number who had been tried for a second offense had been sentenced to fifteen days' imprisonment. The New York State Board of Agriculture has sent out an order forbidding the storage or sale of any milk or milk product in unclean receptacles or in buildings with insanitary surroundings. It is the expressed intention of the Commissioner of Agriculture to proceed against persons violating the order.

Personal.—Dr. Emerson B. Lambert, Port Jervis, has been appointed an official visitor to the Middletown State Homeopathic Hospital.——Dr. Charles D. Graney has been made secretary of the Le Roy Board of Health.——Dr. Arthur H. Terry, Patchogue, while going to Sayville to assist in an operation, was thrown from his automobile by a collision with a hidden hydrant and bruised about the head and shoulders.——Dr. Walter A. Scott, Niagara Falls, who was recently operated on for appendicitis, is reported as making favorable progress toward recovery.——Dr. Henry D. Sill, Cooperstown, has been appointed a member of the board of managers of the Binghamton State Hospital.

New York City.

Strauss Milk Depots Opened.—Sixteen stations were opened June 24 for dispensing milk to the children of the poor.

Conrad to Sing Sing.—Dr. Edward E. Conrad, whose conviction for attempted abortion was affirmed by the Court of Appeals, was sent to prison June 18 to serve a term of not less than one year nor more than two years.

Contagious Diseases.—There were reported to the sanitary bureau for the week ended June 17, 746 cases of measles, with 31 deaths; 373 cases of tuberculosis, with 152 deaths; 281

cases of diphtheria, with 31 deaths; 142 cases of scarlet fever, with 5 deaths; 68 cases of cerebrospinal meningitis and 42 deaths; 45 cases of typhoid fever, with 13 deaths; 108 cases of varicella.

New Hospital for Consumptives.—Plans have been filed for the building of a new hospital on the southwest side of North Brother Island at a cost of $150,000. It will be exclusively for the treatment of consumptives and will be equipped with all the newest appliances for the treatment of this disease. Most elaborate arrangements will be made for heating and ventilating and it is proposed to make the hospital a model for institutions of this class.

Seaside Hospital Begins Work.—St. John's Guild has announced the opening of its seaside hospital at Newdorp, Staten Island. In its twenty-four seasons this institution has treated 31,163 children and their mothers, from among the poorest of the city, and absolutely without cost to them. Until the floating hospital begins its trips patients for the seaside hospital will be met at the Staten Island ferry and, after an examination by the doctor, will be sent to the hospital.

Personal.—Dr. William S. Bainbridge has been appointed consulting gynecologist at St. Mary's Hospital, Jamaica, L. I.——Dr. J. G. Johnson of Brooklyn was thrown from his buggy and escaped with slight injuries.——Dr. Daniel Stimson sailed on the *Rotterdam* for Boulogne, June 20.——Dr. and Mrs. Edward H. Griffin and Dr. Alexander T. O'Malley sailed on the *Patricia* for Hamburg, June 24.——Dr. and Mrs. William S. Bennett sailed on the *Furnessia* for Glasgow, June 24.——Dr. and Mrs. W. A. Crofoot arrived home on the *Potsdam*, June 20.——Dr. Frank J. Parker sailed for Europe June 15.

The Risk of Consumption.—Justice Marean of the Supreme Court in Brooklyn has handed down an opinion telling why he had granted a temporary injunction restraining the Board of Health from establishing a clinic for consumptives in Henry street, Brooklyn. The substance of this decision is that if the breathing of street dust containing the germs of tuberculosis is a menace to health, the more germs there, the greater work will be the risk, and that the establishment of a clinic for the treatment of this disease would bring many victims into the neighoorhood and thus materially increase the danger to dwellers in the vicinity.

OHIO.

New Department to Treat Tuberculosis.—The Cincinnati Polyclinic has established a free department for the treatment of tuberculosis under the direction of Drs. B. F. Lyle, C. E. Iliff and J. H. Schroeder.

Personal.—Dr. Bernard R. Le Roy, Chagrin Falls, sailed June 18 for Porto Rico. He will visit Central America and Mexico before he returns.——Dr. Aloysius P. Renneker, Cincinnati, was thrown from his buggy by a collision with a street car June 22 and slightly injured.

Bars Dangerous Explosives.—The Cleveland city council has passed an ordinance governing the use of fireworks, which closes as follows: "And the permission hereby given to explode fireworks on the Fourth of July shall not extend to nor include blank cartridges, blank cartridge pistols, nitroglycerin, fireworks containing nitroglycerin, repeating marbles, toy cannons or dynamite torpedoes." This ordinance has been passed by the efforts of the legislative committee of the Cleveland Academy of Medicine.

To Protect Public Against Contagion.—The assistant city solicitor of Cincinnati recently rendered a decision to the health officer that hereafter where circumstances warrant, for the protection of the public against contagion, the health authorities can remove a person suffering from consumption from a private home to a quarantine hospital, inasmuch as the State Board of Health has declared tuberculosis to be a contagious disease. However, as there is not such immediate danger of contagion from this disease as from smallpox, no hasty action should be taken. The most thorough investigation and consideration must be given to a case before such action is taken and there must be no doubt about the immediate danger of contagion before it is done. The health officer must also exercise great care not to cause unnecessary hardship on a person or family in such a case.

Cincinnati Faculty Changes.—At a recent meeting of the Medical College of Ohio, Medical Department of the University of Cincinnati, Drs. Phineas S. Connor, dean of the faculty and professor of surgery, and Thaddeus A. Reamy, professor of gynecology, resigned. Dr. Frederick Forchheimer was elected dean; Dr. Joseph, professor of surgery; Dr. H. J. Whitacre, professor of the principles of surgery; Dr. S. P. Kramer, professor of surgical pathology; Dr. Samuel Iglauer, associate professor of laryngology; Dr. P. S. Connor, emeritus professor of surgery and professor of clinical surgery; Dr. Thad. A. Reamy, emeritus professor of gynecology; Dr. E. Gustave Zinke, professor of obstetrics and gynecology; Drs. C. L. Bonifield and C. A. L. Reed to the executive faculty.——At a recent meeting of the faculty of Miami Medical College Dr. Edward W. Walker was elected professor of the principles of pathology; Dr. Oliver P. Holt, professor of pathology; Dr. Frank Lamb, lecturer on physiology, and Dr. Edward H. Shields, professor of skin and venereal diseases.

PENNSYLVANIA.

Heat Prostrations.—Many cases of heat prostration were treated in the hospitals of Philadelphia during the hot days in the early part of the week. On June 19 the thermometer registered 94 degrees. This temperature has never been exceeded during the last thirty-five years. Several deaths were recorded in Philadelphia and also a large number of prostrations and deaths in the other cities of this state, particularly Pittsburg.

Assistants to State Health Commissioner Appointed.—Dr. Samuel G. Dixon, the newly appointed commissioner of health, announced the following appointments June 22: Assistant commissioner of health, Dr. Benjamin Lee, who was for many years treasurer of the state medical society and was appointed secretary of the State Board of Health in 1885, and Dr. Frederick C. Johnson, Bradford, was appointed chief of the division of inspecting, quarantining and disinfecting.

Philadelphia.

Physician Exonerated.—Dr. Horace Ladd, who was arrested, charged with performing a criminal operation resulting in the death of a patient, was exonerated by the coroner's jury June 22.

Malpractitioner Sentenced.—Philip M. Pierson, alias "Dr." White, 72 years old, pleaded guilty in Quarter Sessions to the charge of malpractice and was sentenced to eighteen months in the county prison.

Personal.—Dr. Charles K. Mills has been appointed consulting neurologist to the American Oncologic Hospital, and Dr. Samuel McClary III has been elected assistant pathologist to the same institution.——Dr. Thomas Hunter sailed for Europe June 22.——Dr. and Mrs. Oram Ring will sail for Europe the first week in July.

Medical Inspection in May.—During May 3,688 inspections were made by the medical inspectors, excluding schools. They ordered 540 fumigations and came in contact with 58 cases that required special diagnosis. They made 5,186 visits to the different schools throughout the city and excluded 863 children from the schools. They took 162 cultures for examination, made 105 injections of antitoxin and performed 580 vaccinations.

Bequests.—By the will of Mrs. Pauline E. Henry, one of the founders of the Germantown Hospital, that institution receives $10,000. The sum is to be used for the support of two free beds for incurable female patients. Besides this sum she bequeaths $5,000 as an endowment fund, and the remainder of her estate is to be utilized to establish another ward or hospital for convalescent female patients and children. The testator also bequeaths $2,000 to the Woman's Hospital to endow a scholarship for nurses.

Health Report.—The number of deaths reported for the week ended June 24 aggregated 451, an increase of 31 over those reported last week and an increase of 56 over those of the corresponding period of last year. The torrid wave early in the week was partially responsible for this increase. The principal causes of death were: Typhoid fever, 14; diphtheria, 3; consumption, 53; meningitis, 2; cancer, 18; diabetes, 6; apoplexy, 24; heart disease, 43; acute respiratory disease, 28; enteritis, 62; Bright's disease, 33, and sunstroke, 3. There were 227 cases of contagious disease reported, with 17 deaths, as compared with 269 cases and 29 deaths during the preceding week.

Medical Visits in Schools.—The report of the assistant medical inspectors of their visits to the schools throughout the city from September, 1904, until June 1, showed that 46,196 visits were made. During this period 111,100 school children were examined. Of this number 513 cases required special diagnosis. The inspectors performed vaccination on 13,120 individuals. They took 2,466 cultures from suspicious sore throats and made 1,034 injections of antitoxin. They also made 4,577 visits to typhoid fever patients; 3,144 visits to

diphtheria cases; 2,199 to scarlet fever; 2,615 to chicken pox; 738 to tuberculosis, and 19 to smallpox cases. Prior to the increase in the number of inspectors it was the custom to pay other physicians 40 cents for each vaccination alone. The statistician of the health office has figured that according to the visits made by the medical inspectors and their salary—$1,200 a year each—the cost to the city was a trifle over 30 cents for each visit.

Observations on Cerebrospinal Fever.—The following is the report of the observations on cerebrospinal fever made by the medical inspectors:

Since the published report on "Epidemic Cerebrospinal Meningitis" in the "Bulletin of the Bureau of Health" for week ending April 8, 1905, a careful study and critical analysis has been made of the clinical data submitted to this office by the medical inspectors, who were instructed to secure from family physicians a complete history of every case reported to bureau, from September, 1904, to date of this issue.

The result of this research has disclosed information of a very satisfactory nature, so far as the health of the city is concerned; but discouraging, when we consider the little progress made in its treatment, so far as reducing its percentage of mortality; then too, no satisfactory light is thrown on the method of transmission.

Despite the mild hysterical condition of the people, due doubtlessly to exaggerated newspaper accounts of the prevalence of cerebrospinal meningitis in this city, the facts revealed are most comforting. Since September, 1904, there have been only 50 cases of the epidemic form of this disease. In two or three of these cases, the inspectors had reason to believe the symptoms were not clearly interpreted; but were unable to secure more satisfactory data. This has compelled us to add a few cases which were decidedly doubtful.

These cases were distributed throughout the length and breadth of the entire city. From Germantown on the extreme northwest border, to Southwark on the southeast; and from Frankford to Paschalville in the Fortieth ward. Cases were found in 30 of the 42 wards of Philadelphia. In four instances two were taken from same house; but with these exceptions, there was but little evidence to show the disease was transmitted directly, as the others were scattered broadcast over the city. All history of contact being positively excluded in the large majority.

Age, seemingly, figures as a predisposing factor, as but three of the fifty cases were over thirty years of age, and 80 per cent. were twenty or under. People of all colors seem to be attacked alike. The number of blacks reported was in proportion to the percentage of the white population.

That sanitary environment is not the dominant influence in the etiology of this malady, was demonstrated by the fact that in thirty-eight of the homes of those afflicted, or 80 per cent. of houses in which cases were found, the inspectors reported the surroundings to be in good sanitary condition.

Lumbar punctures were made in but sixteen instances, with positive results in all but one. As many of the patients were treated in their own homes, this important aid in diagnosis was often omitted for lack of proper facilities. Of the entire fifty cases reported, thirty-two died, showing a mortality of 64 per cent.

On tabulating the symptoms, we found that with but four exceptions, none of the classical phenomena was conspicuously constant. The four exceptions were abrupt onset, vomiting, cephalalgia, and stiffness of neck. These symptoms were present in 75 per cent. of the cases. Kernig's sign was elicited in 50 per cent., and herpes in only 20 per cent.

When we compare total of fifty cases in this city, with a population of approximately 1,500,000, with the reports of the prevalence of this disease in some of the other large cities, the community of Philadelphia has ample reason to be congratulated.

SOUTH CAROLINA.

The New State Journal.—The first number of the *Journal of the South Carolina Medical Association* was issued June 21. Dr. T. P. Whaley, secretary of the South Carolina Medical Association; Dr. Robert Wilson and Dr. Charles P. Aimar of Charleston, are the editors. Attractive in form and composition, it will prove of great value to the organized profession in the state. The greater part of the first number is devoted to a report of the annual meeting of the South Carolina Medical Association at Greenville, and to reports of committees and county societies. It also contains the annual address of the retiring president, Dr. Robert Wilson, Jr., and a number of original articles.

GENERAL.

More Hospitals for Panama.—The Panama Canal Commission has decided to build several new hospitals, one at Empire, with 500 beds; one at Colon, with 96 beds, and one at Taboga, with 100 beds; also a sanitarium at Panama. The hospitals at Panama will be rebuilt and equipped with modern appliances and accommodations.

Yellow Fever in Panama.—According to dispatches, the sanitary conditions of Colon and of Panama show no improvement. From June 4 to 12 four new cases of yellow fever were admitted to the hospitals. Of these 2 patients were Americans. Two deaths from yellow fever occurred in Panama during the week ending June 12, and 4 in Colon.

FOREIGN.

Institutions for Phototherapy in Italy.—A group of physicians at Milan have opened a subscription to provide the public hospital with an equipment for free Finsen treatment of lupus. Florence already has an institution of the kind.

Sanitarium for Returning Insane Russian Soldiers.—The great influx of soldiers returning from the seat of war with nervous and mental affections has led to the organization of a number of physicians for the purpose of founding a private sanitarium. The capacity of the military hospitals has long been exhausted.

Schmidt of Marburg Receives the Hanburg Prize.—The Hanburg prize for promoting progress in chemistry and pharmacognosy has been awarded this year to Prof. E. Schmidt of Marburg. The presidents of the British Pharmaceutical Society, the Chemical Society and the Linné Society are members *ex officio* of the committee in charge of this biennial prize.

Ehrlich and Cajal Elected Members of the Paris Academy of Medicine.—At the session of May 23 this society voted to elect Ehrlich and Ramon y Cajal foreign associate members. The list of names proposed included, beside these, Sir William Broadbent of London, von Esmarch of Kiel, Hansen of Bergen, and Morisani of Naples, Broadbent receiving the next largest number of votes.

French Medical Mission in China.—In 1902 the French obtained permission to open a hospital in Tchentou, a city in western China. The viceroy has been pleased with the work done by the hospital, and government quarters have now been allotted for the organization of a medical college. Thirty-two students have already applied and a special building is now being constructed for the college.

Lime in Treatment of Tuberculosis.—Angiulli of Naples has accepted the theory of excessive loss of mineral elements as the main factor in preparing the soil for tuberculosis or in keeping it favorable. He therefore treats the disease by hypodermic injection of soluble lime salts. He has been exhibiting at Rome a number of patients cured by this remineralization, and is urging others to give it a trial.

The Italian Asylum for Orphans of Physicians.—A letter from Rome in the *Münch. med. Wochft.* for May 9 describes this institution. It is located at Perugia, about the center of Italy, and was founded by private benevolence, but is maintained by a small tax on all physicians in the paid employ of cities, states or communities throughout the kingdom. It is managed by a committee of 15, the majority of whom reside in Perugia; the others are rarely able to go there to aid in the administration of the asylum. The boys are housed in a gloomy, cold, damp building built for a monastery, and the girls are boarded out in a local young ladies' seminary. The expense is comparatively high, each of the wards costing the state about $200 a year.

Russian Physician Beaten.—Our European exchanges have had considerable to say lately in regard to the outrage inflicted on a prominent Russian physician by the commanding general in the Caucasus, General Kowaleff. The physician had no acquaintance or connection with the general, but came to his residence in response to a professional summons, the messenger stating that the general was very sick. When he arrived he found the officer drinking wine at a table with a friend, and a glass was courteously offered the physician. As he took it he was seized from behind by seven Cossacks, stripped and knouted savagely, and then carried home in a carriage. No cause for the outrage could be surmised, and the entire profession was indignant. The general was summoned before the military court and was mildly censured but not otherwise punished. The protests were so vigorous that further court proceedings were instituted against him, but the latest news is to the effect that he has committed suicide.

The Spirochaete Pallida and Syphilis.—An editorial in the *Münch. med. Wochft.* for June 13 comments cautiously but exultantly on the testimony that is accumulating in favor of the assumption that in the *Spirochaete pallida* the germ of syphilis has at last been discovered. The prominence of its discoverer, Schaudinn, one of the leading authorities on protozoa in the world, and the prominence of the scientists whose control investigations have confirmed his findings, compelled respectful attention at once to their statements. The control list includes Metchnikoff of Paris, C. Fraenkel of Halle, Lehmann of Würzburg and many others. These have all found the pallida in the lesions of acquired or inherited syphilis and nowhere else, but to date it has proved impossible to cultivate this delicate spirochaete in pure cultures. Schaudinn is in charge of the protozoa laboratory of the government public health department. Koch's discovery of the tubercle bacillus was also made under the auspices of the same German "Kaiserl. Gesundheitsamt."

Marmorek's Antituberculosis Serum.—Prof. E. Lewin of Stockholm was sent by the Swedish government to Paris

last December to examine into the production and action of Marmorek's antituberculosis serum. He spent several months on the mission and has returned convinced that its results justify further trials on a large scale. He states that Marmorek has a record of 400 cases treated by himself or others in various lands, and fully 100 can be regarded as cured. The proportion in 100 cases of surgical tuberculosis was 80 per cent. cured or immeasurably improved, without any adjuvant measures. These proportions were about the same as in the numerous cases inspected at intervals by Lewin in Paris, Switzerland, and elsewhere. The serum has no toxic action as it contains the antitoxins alone. On the basis of this favorable report the serum is being tried now extensively in Sweden, Marmorek having presented him with 2,000 vials free of charge. Dr. A. Marmorek was connected with the Paris Institut Pasteur until recently and still resides in Paris.

Work of the Board of Public Health in Mexico.—The bulletin issued by the public health department of Mexico for May gives the report of N. del Rio, chief of the yellow fever service in Vera Cruz, for April. The energy and efficiency displayed are evident from the fact that all non-immune persons are closely watched, the chief reporting 37,913 visits made to non-immune persons during the month. He also states that 685 non-immune persons entered and 495 left the city during that time. As many as 1,501 deposits of water were petrolized and 57 house owners were notified to make certain repairs or improvements, while the department cleaned 29 premises and disinfected 85 houses in which cases of tuberculosis, measles or malaria had occurred. Not a single case of yellow fever developed during the month, although the weather was hotter than for years, and almost every disease was complicated with an icteric condition due to the excessive functional activity of the liver at this temperature. He adds that the defective condition of the water pipes causes so much leakage of water that the supply is not enough for the city, and reserve supplies are kept on hand in barrels, etc., thus providing unusual opportunities for the breeding of mosquitoes.

Cuban National Medical Congress.—The physicians of Cuba gathered at Havana May 20 on the "independence day" of the republic, for the first national medical congress. The subjects appointed for discussion were the prophylaxis of yellow fever and malaria, parasitology in Cuba, also the campaign against tuberculosis, and the sanitary statistics of the island. J. A. Presno of Havana, editor of the *Revista de Med. y Cirugia*, was the secretary general, and the issue of the *Revista* for that date is a bulky number containing several of the communications. Among them is one by Landa, giving instances of the noxious influence of the abuse of tobacco on the hearing. He also urges careful antisepsis of the nose and throat in prophylaxis of ear affections during and after infectious diseases. For this he advises inhaling the steam of boiling water, to which a spoonful of an alcoholic 4 per cent. solution of menthol has been added. Or the nose can be disinfected with a salve containing 5 parts boric acid and .5 part menthol in 30 parts vaselin. For a gargle he orders 5 gm. salol and 10 drops each of tincture of mentha and tincture of eucalyptus in 100 gm. alcohol. One teaspoonful of this mixture is added to a cup of hot water and used as a gargle or spray. Mon calls attention to his low mortality rate of less than 6 per cent. in 47 cases of typhoid fever. The general average in Havana is over 28 per cent. He gives an energetic saline purgative on the suspicion of typhoid, and a weaker one the next day. Then he urges the patient to drink freely, but allows no food for eight or nine days, thus giving the inflamed bowels a rest and chance to recuperate. Quinin and benzonaphthol are given every day and modified Brand baths as indicated. Two of the three fatal cases were not seen until the second week, and the third patient was a confirmed alcoholic. Recovery was exceptionally rapid and complete in his series. Menocal reports 3 cases of pneumococcus infection localized in the genitals, a few weeks after an attack of pneumonia. The patients were men 38 to 51 years old. Albarran of Paris describes what he calls a new procedure for subcapsular nephrectomy. Its special feature is the ease with which the pedicle can be taken care of. He rinses out the cavity with H_2O_2, never using a toxic antiseptic in kidney surgery. D. Francisco discussed surgical intervention on persons addicted to the ether or chloroform habit. The congress proved successful beyond all anticipations, more than a hundred papers being on the official program, the speakers representing all parts of the island.

LONDON LETTER.

Finger-Print Evidence.

A recent brutal murder for the purpose of robbery of an old man has led to a legal dispute as to the value of finger-print evidence in which the judge severely censured a physician called by the defense. The accused were two lads, thieves by occupation, and the evidence was entirely circumstantial. One of the strongest points was a finger print impression left on a cash box. Inspector Collins of the Scotland Yard finger-print department stated that the department had now between 80,000 and 90,000 sets of records, which meant the impressions of a corresponding number of digits. He had never found two impressions to correspond. The highest number of characteristics he had ever found to agree in the impressions of two different fingers was three, and only two or three such instances had occurred. The right thumb of one of the prisoners agreed with the mark on the cash box, there being twelve characteristics in common. For the defense a physician was called who said that he had a large experience in the finger-print system, and was employed by the government in 1894 to undertake the organization of the finger print and Bertillon system and that he had trained a staff of police officials. He described points of dissimilarity between the two prints. He thought it was possible that they were prints of the same person, but that they were undoubtedly of different fingers. In cross-examination he admitted that he had no experience of identification by finger prints since 1901. He thoroughly damned his evidence by having written both to the prosecution and to the defense, offering to give evidence on behalf of whichever retained him. When pressed on this point he said "I am an independent witness." The judge then interjected: "An absolutely untrustworthy one." When counsel for the defense put some further questions the judge exclaimed: "Isn't there a limit to whitewashing this gentleman? It has done your client a lot of harm." The prisoners were found guilty and executed. Any doubt which might have existed was removed by their confession.

The Aims of Tropical Medicine.

At a banquet in aid of the funds of the London School of Tropical Medicine, at which $50,000 was subscribed, Sir Patrick Manson gave a lucid account of the work of the school and sketched a plan for systematic and co-ordinated research in tropical disease centers. This consists in the establishment of colonial research laboratories in places where they are likely to achieve profitable results. Already three such laboratories have been established—in Ceylon, at Kuala Lumpur, in the federated Malay states, and in Hongkong. Sir Patrick Manson suggested that one such laboratory should be established for every group of crown colonies, the director to be in organic relation with the London school, but with a free hand to take up any special line of investigation in tropical diseases. The directors of these laboratories should be educated in their special work at the London School of Tropical Medicine; East Africa, Uganda and British Central Africa might form one group, the West Coast of Africa another, the West Indies and British Guiana a third, Fiji and the Pacific islands a fourth. Thus there would be seven laboratories affiliated with the London School of Tropical Medicine. Sir Patrick Manson also emphasized the importance of educating the natives in tropical hygiene. He suggested that tuition in the rudiments of the subject should be included in the curriculum of colonial government schools, so that when the child grows up he may be willing to submit to sanitary measures. Without the co-operation of the natives it is hopeless to try to get any scheme, however good, carried out. A necessary preliminary is the preparation of primers for the instruction of school teachers who in turn would teach children.

The Concentration of Scientific Teaching in London.

The problem of concentrating the teaching of the preliminary and intermediate subjects of the medical curriculum in a few centers has long occupied the attention of reformers in medical education. Its solution would necessarily produce greater efficiency in teaching and economy in expenditure. Huxley suggested it thirty-five years ago, but until recently it made no progress. The report of the committee of the King's Hospital Fund on the financial relations between the hospitals and medical schools (referred to previously in THE JOURNAL), has given it an impetus. The Westminster Hospital Medical School has completed negotiations for the transfer of the teaching of chemistry, anatomy, physiology and materia medica to King's College. Similar negotiations are in progress between other hospitals and King's and University College. Probably there will be three centers in London where medical students can take the scientific part of their curriculum—King's College, University College and the Institute of Medical Science of the University of London.

The Dangers from the Red Rubber Rings of Stoppers of Bottles.

A physician, writing to the *Lancet*, calls attention to a previously unrecognized source of poisoning—the red rubber rings used in the stoppers of bottles—to which he is inclined to attribute appendicitis and other intestinal disorders. He was put on the track in this manner: While visiting a patient he observed a young girl whom he knew looking very ill and depressed, behind the counter of a shop. She stated that she had felt ill for the last two days and was getting worse. Her pulse could scarcely be felt and her hands were cold and clammy. Three hours later he was summoned to her and found her suffering from acute appendicitis. There had been no pain previously. She was removed to a hospital and the appendix was removed. This case gave him the idea that the cause of appendicitis was something which produced first general depression. He learned that the girl was in the habit of drinking daily about six bottles of non-intoxicating drinks which she bought in bottles and that she was the only one of the family who did so. He then inquired of all his patients who had suffered from appendicitis, nine in all, and found they had been drinkers of non-intoxicating drinks from bottles fitted with red rubber rings. On submitting the rings to a chemist for analysis he received the report that antimony could be extracted from them with an alkali and that there was no doubt that alkaline waters and those containing organic acids would have a solvent action on the antimony of the rubber. Further inquiries showed that the red rubber from which the rings were made had the following composition: Rubber, 20; sulphid of antimony, 12; red oxid of zinc, 5; sulphur, ⅛ ,and lime, ¼. In use the rings are worn down from one-eighth of an inch thick to the thinness of paper and present innumerable cracks and become brittle. Small particles fall into the bottles and are swallowed in the drink. The rings are used in all sorts of bottles—beer bottles, "mineral water" bottles, syphons "sparklets," pickle bottles, and jelly and preserved fruit bottles. The physician suggests that the antimony has a depressive influence on the muscles of the intestine and produces constipation, which in turn leads to appendicitis and other disorders. Whether this theory be true or not, there can be no doubt that he has discovered an unrecognized source of antimonial poisoning.

The Dangers of Jewish Circumcision.

The case of a Jewish child circumcised by a mohel (a rabbi performing circumcision), has been the subject of a coroner's inquest. An hour after the operation there was hemorrhage which the mohel attempted to arrest but failed. He then sent for a physician, and after some delay one arrived. Eventually three physicians were summoned, but they failed to arrest the hemorrhage and the child died. The coroner censured the mohel for not sending for a physician earlier and said that but for the fact that he had done so in the end he would have committed him for trial for manslaughter.

The British Medical Association.

The seventy-third annual meeting of the British Medical Association will be held in Leicester, July 24-28, 1905. The committee is endeavoring to make the annual pathologic museum, usually such an important feature, an exhibition of the progress made in medicine as well as a means for examining the various specimens which form the groundwork of the papers read at the sections. In connection with the food, drug and instrument exhibition a motor car show will be held, at which motors especially suited for physicians will be on view. The meeting will comprise twelve sections.

Pharmacology

ACETANILID MIXTURES.

Whatever is secret is suspicious, and this axiom applies especially to medicines that are secret in character. One reason for the success of secret nostrums lies in the fact that extravagant claims are made for them, which on their face would be ridiculous in the extreme if their true composition were known. Remove the mystery surrounding these preparations and their wonderful virtues would vanish. When the secrecy is revealed and the mystery removed the therapeutic claims appear so absurd that they are laughable. Having shown the true character of some of the secret mixtures (see JOURNAL, June 3, 1905, p. 1791), we thought the publication of some of the "literature" supplied by the manufacturers would make interesting reading. Last week we reproduced "literature" regarding phenalgin and ammonol; below we have made some extracts from the advertising matter of antikamnia and salacetin. The latter, according to the analyses, being an acetanilid mixture which, combined with codein, goes under the euphonious and catchy name, "Sal-Codeia Bell."

Antikamnia.

Our readers will be interested to learn some of the remarkable properties which, according to the statements of the manufacturers, this antikamnia possesses. We quote from the advertising literature:

The well-known nerve specialist (?), Dr. Harley, in an interview published in the *London Daily Express*, says: "I have treated more than one American for nervousness and 'brain fag' directly due to their incessant energy. I had a young man in here this morning who complained of headache 'in the back of the neck.' He was threatened with congestion of the brain, and seemed somewhat aggrieved when I told him he had been trying to do too much.

"I also treated a young American woman, who since her arrival in London had apparently been living on antikamnia tablets by the advice of her physician. It was the only thing, she said, which kept her 'braced up' for the strain of sight-seeing."

(Why did the young woman consult this Dr. Harley—for the drug habit?)

Note the following:

For the severe pains of rheumatism, dysmenorrhea, neuralgia, gout, sciatica and lumbago, as well as for the lightning pains of locomotor ataxia, there can be no quicker and more lasting relief obtained than by the administration of antikamnia and codeine tablets.

Imagine an intelligent physician trying to treat the diseases mentioned below with the various impotent means of the pharmacopeia and physiological therapy when he might depend on antikamnia! We quote again:

As a Pain Reliever.—In headache, cephalalgia, hemicrania, migraine [some other words might have been thrown in so as still more to emphasize the headache business], myalgia, coryza, la grippe and its sequelæ, the lightning pains of locomotor ataxia and all pains due to irregular menstruation.

As an Anodyne or Sedative.—In alcoholic delirium, indigestion, cardialgia, gastralgia, dyspepsia, hysteria, insomnia, inebriety, car-sickness, sea-sickness, worry and sightseer's fatigue.

As an Antipyretic.—In typhoid, intermittent, puerperal and malarial fevers, bronchitis, pneumonia, pleurisy, and tuberculosis.

As an Anti-Neuralgic.—In acute or chronic neuralgia, facial neuralgia, earache, pain about the teeth, angina pectoris, neurasthenia, palpitation, pains of locomotor ataxia and sciatica.

As an Anti-Rheumatic.—In acute or chronic rheumatism and gout, fever and pleurodynia.

There is no remedy so useful and attended with such satisfactory results as antikamnia tablets in the treatment of melancholia with vasomotor disturbances, anemic headaches, emotional distress, and active delusions of apprehension and distrust. They increase arterial tension and promote digestion, as well as being particularly serviceable in relieving the persistent headache which accompanies nervousness.

In neurasthenia, in mild hysteroid affections, and in the various neuralgias, particularly ovarian, and in the nervous tremor so often seen in confirmed drunkards, they are of peculiar service. In angina pectoris this drug has a beneficial action; it relives the pain and distress in many cases, even when amyl nitrite and nitroglycerin have failed entirely. In pseudo-angina, frequently observed in hysterical women, its action is all that can be desired.

Patients who suffer from irritable, weak, or palpitating heart, needing at times a pain reliever, can take antikamnia tablets, without untoward after-affects, knowing that the heart is being fortified. In delirium tremens, they relieve when there are great restlessness, insomnia, the general lowering of the nerve power.

Only the vivid picture of a crisis in locomotor ataxia, or the agony of a true migraine, can impress the observer with the full value of this pain reliever.

The following testimonials are from physicians:

Dr. Caleb Lyon, an old Bellevue practitioner, in referring to antikamnia and codeine tablets, says:

In my practice they accompany the maid from her virgin couch to her lying-in chamber, assuaging the perplexities of maidenhood and easing the trials of maternity with most gratifying results. I earnestly hope that the proprietors of this valuable remedial agent will keep it up to its present standard of purity and excellence.

Dr. Walter M. Fleming, A.M., M.D., New York City, writes:

. . . . With all the experience of more than a quarter of a century, in the treatment of winter cough, and all its complications of laryngeal, bronchial and pulmonary irritability, dyspnea, asthmatic spasms, and finally whooping cough—usually the most persistent and tenacious of all these membranous maladies—I find no one remedy more strongly indicated, or which yields more prompt and satisfactory results than antikamnia and heroin tablets,

composed of antikamnia 5 grains and heroin hydrochloride 1/12 grain. . . . Result; a prompt and efficient expectorant, at once relaxing the harsh and rasping cough, releasing the tenacious, sticky and gelatinous mucous which is soon readily expectorated, while the soothing influence of the antikamnia is at once manifested, greatly to the comfort and contentment of the patient. . . . Independent of the fact of the direct applicability of this remedy to the various membranous maladies of the lungs, bronchi, fauces and nose, it proves also, an invariable remedy in all febrile cases where anodyne is required. This, together with its analgesic and antipyretic merits eminently qualify this combination for a responsive agent in the treatment of nearly all the numerous febrile attacks characterized by pain, nervousness, insomnia and their accompanying symptoms.

"Antikamnia and Quinin."

If there is any virtue in the particular combination known as "antikamnia," a physician prescribing the tablets supposed to contain combinations of "antikamnia" and some other drugs should have some guarantee that they contain those remedies. Take, for example, the tablets advertised and sold as "antikamnia and quinin." It might reasonably be supposed that the tablets contained the combination known as "antikamnia;" this, however, seems not to be the case. Previous analyses, as published by us, have shown that antikamnia contains approximately 20 per cent. of sodium bicarbonate, yet two chemists, working separately, have been unable to find this ingredient in the tablets advertised and sold as "antikamnia and quinin." Are we to understand, therefore, that the manufacturers do not consider the bicarbonate of sodium of importance in their preparation, antikamnia; or are they guilty of misrepresentation, and of misleading physicians in omitting this constituent from their product antikamnia when that is combined with the bisulphate of quinin? The above statement regarding the omission of bicarbonate of sodium from the quinin combination may be verified by any physician who desires to make a few simple chemical tests—carbonic acid is not given off when the tablets are treated with dilute acids, as would be the case if sodium bicarbonate were present. Further, while the ordinary "antikamnia" contains no constituent not soluble either in water or in chloroform, and while quinin bisulphate is readily soluble in water, the tablets said to contain antikamnia and quinin bisulphate, when treated successively with water and with chloroform, leave a residue of more than 18 per cent.

One of the chemists who analyzed the preparation for us, in commenting on this in a letter, says: "The matter which is insoluble in water, alcohol or in chloroform, i. e., the substance which is neither 'antikamnia' nor quinin bisulphate, amounts to more than 18 per cent. in 'antikamnia and quinin bisulphate tablets.' The tablets weigh close to five grains and are said to contain 2.5 grains each of antikamnia and quinin bisulphate. How is this possible when each tablet contains almost one grain of foreign substance (chiefly starch)?"

Further comment is superfluous. We have presented facts to our readers and leave them to draw their own conclusions.

Salacetin and Sal-Codeia (Bell).

Some time ago we wrote to Messrs. Bell & Co., calling their attention to the fact that we had made an examination of their product, salacetin, and that as a result of such examination it was found to be a mixture, which did not coincide exactly with their description of it. They replied that "our description of salacetin is correct and that we have nothing more to impart except that any one publishing any different formula from that given in our circulars will be held responsible by us."

The description they give is as follows: "Prepared by the interaction, with heat, of salicylic acid, glacial acetic acid, and purified phenylamine."

This sounds very scientific, but when we remember that acetanilid is a result of the action of glacial acetic acid on phenylamine—anilin—their description is cute, to say the least. Of course, there is "interaction with heat" when salicylic acid is combining with bicarbonate of sodium to form salicylate of sodium. Further, there is, no doubt, some "interaction with heat" when the substances are rubbed together in mixing them and when they are going through the mill to form tablets, not to mention the heated imagination of the promoters of this "synthetic."

The following, taken from the advertising literature furnished by the manufacturers and distributed by them, is quoted to show the claims made for this preparation:

"Salacetin is free from Toluodine and produces no harmful cyanosis." In the treatment of Acute Bronchitis, Grippe, Influenza, Tonsillitis, Lithemic Headaches, Rheumatism and Neuralgias, it relieves pain, reduces inflammation and abnormal temperature, and eliminates uric acid [everything eliminates uric acid nowadays, it ought to be all "eliminated" soon] more quickly and thoroughly than the salicylates, and without causing depression or stomachic or renal irritation.

"Have personally interviewed thousands of physicians, including every prominent one in the East, and can honestly state that we have never known of anything at once so efficient and so unobjectionable in the removal of rheumatic and neuralgic pain and other sympfoms of the uric-acid accumulation." "La Grippe and Acute Bronchitis it relieves pain and coughing, reduces inflammation and temperature, makes the patient comfortable and checks the progress of the disease. In Tonsillitis its action is specific." "In Acid Cystitis, it neutralizes acidity, reduces inflammation and removes irritation." "In Dysmenorrhea it relieves pain and congestion with no hallucinations, constipation or danger of a drug habit."

"In Dysmenorrhea and Ovarian Neuralgias try Sal-Codeia Bell. It will relieve the pain as well as morphia. It will not check any secretions, induce any habit, cause any depression or inconvenience of any kind."

This is all the space we can give to reading notices this week.

Of course, it is well understood that acetanilid is a valuable remedy in many instances, if used with caution and when indicated. It certainly has some therapeutic value. There is no doubt that it relieves pain of various kinds. It is to be presumed that combining salicylate of sodium with it will have certain beneficial effects in certain rheumatic conditions, on the supposition that salicylate of sodium and acetanilid are both used with more or less success in certain of these conditions. Also, the combining of bicarbonate of sodium, carbonate of ammonia, caffeine, citric acid, one or several of these, may result in a fairly good combination, but these combinations can be found in the list of preparations of all our large manufacturing pharmaceutical houses, which supply them at one-tenth the cost of these secret remedies. The physician in using these preparations put out by reputable, recognized manufacturing pharmaceutical houses, not only is prescribing preparations that are non-secret, but is using remedies that cost one-tenth as much as the secret preparations, which are exploited under fanciful names and pushed by ridiculous claims.

Patent Medicines in Venezuela.

United States Consul Hurst, La Guaira, Venezuela, reports to the Department of Commerce and Labor as follows:

"A measure recently promulgated places in force a regulation of the Association of Physicians of Venezuela whereby sales of secret or patent medicines, unless formally recognized in Venezuela, are to be prohibited, although they may have the approval of foreign medical faculties. Failure to meet the requirements will subject the offenders to the penalties of the law. A permanent commission has been appointed to examine and classify secret or patented remedies. Every manufacturer wishing to sell medicinal preparations in Venezuela must make a statement, in legal form, setting forth: (1) The name of the remedy (2) the full formula, and (3) the dose prescribed. Two samples, accompanied by the foregoing particulars, shall be submitted to the commission. The manufacturer may appoint by letter, if necessary, a local representative to treat with the commission. For each certificate permitting the sale of a medicine a tax of $3.86 must be paid.

"Four months will be allowed foreign and two months domestic manufacturers in which to comply with these requirements. When this time is past the custom-house will place, for two months, importations of this kind in class 5 of the tariff, paying a higher duty, during which period the preparations may still be brought before the commission. After this they will be put on the list of prohibited articles. The custom-house will continue their examination and appraisement

as heretofore. New secret or patent medicines, compounded after the termination of the time given, may be submitted for examination on fulfilling the requisite formalities. All preparations allowed sale will bear an authoritative inscription to that effect on the wrappers."

Correspondence

Was the Schoolmaster Abroad?

WOODLAWN, KAN., June 20, 1905.

To the Editor:—I note with "laughter akin to tears" the article in THE JOURNAL, June 17, by "An Examiner," under the above caption. This matter would be far more laughable were it not so serious. Would it not be eminently proper and just toward all concerned to divulge the name of any institution responsible for the addition to the profession of such graduates as this one? Why talk of medical ethics when, for for fear of injuring the business of some diploma mill or of incurring the displeasure of those connected therewith, we remain quiet and allow impositions like this to be perpetrated, unheralded to the profession? Publicity in such instances as this would do more toward "regulating" medical schools of questionable repute and methods than all the state and medical society laws and resolutions that have ever been enacted. We are under no obligations whatever to a school that has no more regard for medical ethics, the medical profession and humanity in general than to confer the degree of M.D. on a man who thinks the dose of hyoscin hydrobromate is "a half a teaspoonful." The sooner we are rid of such schools the better, and we will not rid ourselves of them by dealing with them gently. W. L. SHELTON, M.D.

Smallpox Hospitals and Air-borne Contagion.

PHILADELPHIA, June 17, 1905.

To the Editor:—Referring to a recent editorial in THE JOURNAL concerning the observations of some Liverpool physicians concerning the great prevalence of smallpox cases during an epidemic in the territory immediately surrounding the smallpox hospital, as compared with territory some distance from the hospital; referring also to our subsequent correspondence on this matter, and your statement in the editorial that there were but few, if any, contagious disease hospitals located in the built-up portions of cities in the United States, it may interest you to know that the only hospital of this kind in this city is situated in the heart of the residential neighborhood and that during a recent epidemic of smallpox a very large proportion of the cases occurred within a very short distance of the hospital building, thus supporting in a very practical way the experience of the Liverpool physicians.

H. BROOKER WELLS, M.D.

Mutual Misunderstandings Among Medical Men.

GREENFIELD, MASS., June 19, 1905.

To the Editor:—Apropos of your editorial in THE JOURNAL, June 17, on the above subject, I would call your attention to the recent address delivered by Professor Barker to the Massachusetts Medical Society on "Methods in Medicine," wherein he brings out very clearly the fact that no true and lasting results can be wrought in medicine unless "theory and practice can be brought into conjugal relationship;" also to my own remarks in the introduction to my article on "Ocular Vertigo," read at the same meeting, urging the use of simpler language and a closer co-operation between the specialist and the general practitioner. BENJAMIN P. CROFT.

Association News

Missouri Valley and Minnesota Trains to Unite.

Arrangements have been completed to have the Pullmans of the Missouri Valley special and those of the Minnesota medical societies' special run from Yellowstone Park to Portland in one train with stopovers as follows: Spokane, two hours; Seattle, seven hours; Tacoma, eight hours.

Marriages

JOSEPH R. LUTEN, M.D., to Mrs. Lily Adams, both of Fulton, Ky., June 7.

J. I. RATHBURN, M.D., to Miss Nettie Whitt, both of Russell, Ky., June 4.

F. N GORDON, M.D., to Miss Louisa Isenman, both of St. Louis, June 7.

EDGAR H. JONES, M.D., to Miss Clara Baskin, both of Eldora, Iowa, June 15.

JOHN LYON, M.D., to Miss Emma Hill, both of Ninety-Six, S. C., June 14.

G. N. THOMAS, M.D., to Miss Osa Drummond of Bellington, W. Va., June 7.

HARRY G. HARDT, M.D., Hospital, Ill., to Miss Beilfus of Chicago, June 21.

ALANSON WEEKS, M.D., to Miss Belle Harmes, both of San Francisco, June 7.

CLAUDE F. FLEMING, M.D., to Miss Lois Eby, both of Elkhart, Ind., June 20.

EDWIN R. DEAN, M.D., to Miss Bessie Stover, both of South Bend, Ind., June 23.

WALTER N. SHARP, M.D., to Miss Henrietta J. Hill, both of Indianapolis, June 7.

FITZHUGH H. WOLFORD, M.D., to Miss Bettie Bush, both of Allen, Texas, June 6.

RALPH L. TAYLOR, M.D., to Miss Katherine Mark, both of Denver, Colo., June 8.

CYRIL HAAS, M.D., to RUTH M. DIETZ, M.D., both of Ann Arbor, Mich., June 12.

E. M. STEWART, M.D., Imperial, Neb., to Miss Hallie Shure of Clinton, Ill., June 8.

ADA MCNEIL, M.D, Des Moines, Iowa, and S. D. Gordon of Calcutta, India, June 21.

ERNEST THIERMAN, M.D., Horton, Iowa, to Miss Sara Arns of Waverly, Iowa, June 7.

FREDERICK R. HYSLOP, M.D., to Miss Lillian Morton, both of Whitewater, Wis., June 14.

GUTHRIE MCCONNELL, M.D., to Miss Genevieve Knapp, both of St. Louis, Mo., June 10.

OTTO RANGVALD OLSEN, M.D., to Miss Mary Murray, both of St. Charles, Minn., June 21.

THOMAS F. FITZGERALD, M.D., to Miss Nellie McClain, both of Knoxville, Tenn., June 14.

E. OSCAR DEVLIN, M.D., Verdery, S. C., to Miss Mae Donalds of Greenwood, S. C., June 21.

SAMUEL ASHBY GRANTHAM, M.D., to Miss Blanche Burnett, both of Joplin, Mo., June 21.

HENRIETTA M. DOUGHERTY, M.D., to Mr. Jeremiah Trexler, both of Philadelphia, June 22.

JOHN M. SHAUNTY, M.D., Springfield, Ky., to Miss Carrie Coleman of Danville, Ky., June 8.

WILLIAM RUSTON DAVIDSON, M.D, to Miss Helen Chick, both of Evansville, Ind., June 22.

FRANK HULL, M.D., Maple Ridge, Mich., to Miss Estella Kannell of Turner, Mich., June 1.

REGINALD H. CLEARY, M.D., to Miss Anna L. Murphy, both of Mount Ephraim, Ohio, June 8.

CALVIN WILLIAM KNOWLES, M.D., to Miss Cornelia Curtis, both of San Francisco, Cal., June 7.

FRANK M. MAHIN, M.D., Worden, Kan., to Miss Margaret Benjamin of Newton, Kan., June 13.

ELIAS G. ROOS, M.D., Scranton, Pa., to Miss Edith Hirschman of Binghamton, N. Y., June 14.

J. T. SHELLAND, M.D., Minneapolis, to Miss Etta G. Carpenter of Sauk Center, Minn., June 14.

WILLIAM CLOYD GUSS, M.D., Hannibal, Mo., to Miss Maie Cecilia Carroll of Barry, Ill., June 7.

W. EDWARDS SCHENCK, M.D., Cincinnati, to Miss Julia Maud Homer of New York City, June 18.

EDGAR A. DOAN, M.D., Mishawaka, Ind., to Miss Anna Adel Baron of South Bend, Ind., June 20.

HAROLD N. MOYER, M.D., to Mrs. Eleanor E. Myler, both of Chicago, at St. Joseph, Mich., June 8.

JOHN A. COLLINS, M.D., East St. Louis, Ill., to Miss Mollie B. Marshall of Lebanon, Ill., June 21.

WILL L. HOFFMAN, M.D., Calloway, Neb., to Miss Meliss Morris of Charles City, Iowa, June 7.

J. DAWSON REEDER, M.D., Baltimore, to Miss Albina Cook of Green Spring Valley, Md., June 28.

EARL RAYMOND SNYDER, M.D., Troy, Ind., to Miss Floretta Marie Smith of Cannelton, Ind., June 7.

JOHN H. MAYER, M.D., Halifax, Pa., to Miss Mary Irene Lininger of Chambersburg, Pa., June 14.

ERNEST D. MABRY, M.D., Llano, Texas, to Mrs. Gussie Landers Black of Marquez, Texas, June 15.

JAMES THOMAS MITCHELL, M.D., to Miss Myrtle Edith Bailey, both of Middletown, Conn., June 7.

CHARLES A. GOODRICH, M.D., Hartford, Conn., to Miss Margaret Cutter of Brooklyn, N. Y., June 7.

BENJAMIN H. SOUTHWORTH, M.D., to Miss Kathryn Nesbitt, both of Schoolcraft, Mich., June 14.

GEORGE HUBERT LYNCH, M.D., Traverse City, Mich., to Miss Una Palmer of Big Rapids, Mich., June 23.

CHARLES EDWARD ILIFF, M.D., Cincinnati, to FRANCES JESSIE HAAG, M.D., of Edwardsville, Ill., June 22.

LOOMIS W. FEE, M.D., Fort Collins, Colo., to Miss Amy Francelle Avery of Boulder, Colo., June 10.

ARTHUR E. GILLETTE, M.D., Cincinnati, to Miss Mary Davenport of Walnut Hills, Cincinnati, June 14.

JOSEPH WILLIAM JAMES, M.D., to Miss Charlotte Cecile Shepstone, both of Sacramento, Cal., June 15.

RALPH CLARK APTED, M.D., Grand Rapids, Mich., to Miss Susan Joanna Fisher, at Indianapolis, June 15.

GEORGE WIGHTMAN KIRBY, M.D., Millersburg, Ind., to Miss Lottie May Porter of Galesburg, Ill., June 17.

CHARLES JAMES FOX, M.D., Wethersfield, Conn., to Mrs. Eunice Lord Linsley, at Norwich, Conn., June 22.

FOSTER G. B. RAYNALE, M.D., Birmingham, Mich., to Miss Edna M. Brooks of Norwood, Cincinnati, June 7.

EDWARD WOOD ALLISON, M.D., New York City, to Miss Lydia Winterhalter of Milwaukee, Wis., June 14.

CHARLES LESTER CURTISS, M.D., Manchester, N. H., to Miss Lola Norton Clancy of New Haven, Conn., June 23.

JAMES MANNING KENT, M.D., Putnam, Conn., to Miss Florence Seney Cornell of Mamaroneck, N. Y., June 14.

FRANK WILLIAM GREEN, M.D., Cranbrook, B. C., to Miss Lillian Barbara Staples of Stillwater, Minn., June 8.

BRUCE TAYLOR BEST, M.D., Arlington Heights, Ill., to Miss Edith Genevieve Stevens of Jefferson, Wis., June 14.

ZENON A. LAOOIE, M.D., Manchester, N. H., to Miss Alma Marie Merville Rampon of Fall River, Mass., June 8.

RALPH RAYMOND HARRIS, M.D., Cardington, Ohio, to Miss Anna Salemma Thompson of Columbus, Ohio, June 8.

HARRIE VAN NESS FRINK, M.D., Burlington Flats, N. Y., to Miss Flora May Henry of Richfield Springs, N. Y., June 7.

WILLIAM NELSON MACCHESNEY, M.D., Chicago Heights, Ill., to Miss Harriet A. Darnell of Storm Lake, Iowa, June 21.

HUGH MONTGOMERY LOKEY, M.D., Atlanta, Ga., to Miss Rebekah Crawford Hamilton of Birmingham, Ala., June 21.

WILLIAM N. GASSAWAY, M.D., Wicomico County, Md., to Miss Martha Brown of Ellicott City, Md., at York, Pa., in April.

FRANKLIN T. POEHLER, M.D., Minneapolis, Minn., to Miss Harriet Anna Wildes of Riverside, Cal., at Mankato, Minn., June 21.

JOHN G. O'MEARA, M.D., Olneyville, Providence, R. I. to C. ELIZABETH MCGOVERN, M.D., of Providence, R. I., at Dorchester, Mass., June 14.

Deaths

Benjamin W. McGalliard, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia 1889, of Trenton, N. J., a member of the American Medical Association and of the Mercer County (N. J.) Medical Society; formerly health inspector and city physician of Trenton; a member of the medical staffs of Mercer and St. Francis hospitals, and physician to the Trenton Children's Home, died June 14 at the Friends' Sanitarium, Philadelphia, after an illness of several months, aged 43. Mercer County Medical Society sent a floral tribute, and at a special meeting June 16 adopted resolutions expressive of regard and regret.

Louis A. Prefontaine, M.D. Department of Medicine of the University of Pennsylvania, 1892, a member of the American Medical Association, Massachusetts Medical Society, Hampden District Medical Society, American Opththalmological Society; and New York Ophthalmological Society; ophthalmologist, otologist and laryngologist to Mercy Hospital, and ophthalmologist to Springfield Hospital, a prominent specialist on diseases of the eye and ear, of Springfield, Mass., died at Springfield Hospital June 19, after an illness of six weeks from Bright's disease complicated with abscess of the muscles of the chest, aged 39.

James Alexander Close, M.B. Toronto (Ont.) University, 1873; Royal College of Physicians and Surgeons, Kingston, Ont., 1873; Royal College of Physicians, Edinburgh, 1880; Royal College of Surgeons, Edinburgh, 1880; a fellow of the Royal Microscopical Society; professor of pathology and bacteriology in the Barnes Medical College, St. Louis; an expert with the revolver, died at his office in St. Louis, June 15, aged 63. The coroner's verdict read: "Death from gunshot wound in the abdomen, sustained in a manner unknown, but supposed accident."

Benjamin Franklin Showerman, M.D. New York University, New York City, 1886, a member of the American Medical Association, New York State Medical Association and Genesee County Medical Society, twice president of the Batavia (N. Y.) Physicians' Club, died at the Batavia Hospital, June 15, 18 days after an operation for cancer of the stomach, aged 41. Resolutions of respect and condolence were adopted at special meetings by the Genessee County Medical Society, Batavia Physicians' Club and the Board of Trade.

Richard M. Fletcher, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1854; surgeon in the Confederate service during the Civil War; president of the Madison County Medical Society for several terms; sometime vice-president of the Medical Association of the State of Alabama and a member of the council for many years; one of the most prominent medical men of northern Alabama, died at his home in Madison, June 17, from senile debility, after a long illness, aged 74.

Thomas B. Steele, M.D. University of Maryland School of Medicine, Baltimore, 1844, assistant surgeon in the Navy until 1861, when, on account of his sympathy with the Confederate cause, he resigned; a veteran of the Mexican war, and a medical officer in Commodore Perry's expedition to Japan in 1853 and 1854, died at his home in Cambridge, Md., June 22, from senile debility, aged 83.

William E. Parkhurst, M.D. Gross Medical College, Denver, 1899, a member of the American Medical Association, president of the Chaves County (N. M.) Medical Society and second vice-president of the New Mexico Territorial Medical Society, an authority on the treatment of tuberculosis, died from that disease at his home in Roswell N. M., after a long illness, aged 44.

Clarence E. Bizzelle, M.D. Medical Department of the University of Nashville and Vanderbilt University, Nashville, Tenn., 1893, of Monroeville, Ala., health officer of Monroe County, died at the Providence Infirmary, Mobile, from pneumonia, following appendicectomy, June 13, after an illness of three weeks aged 32.

Warren Schoonover, Jr., M.D. Bellevue Hospital Medical College, New York City, 1897, died June 12 in New York City. He was a member of the Medical Association of the Greater City of New York, the New York County Medical Society, Kings County Medical Society and the New York Medico-Surgical Society.

George Philip Fenwick, M.D. National Medical College, Washington, D. C, 1859, a member of the Medical Society of the District of Columbia, Washington Gynecological and Obstetrical Society, and Medical Association of the District of Columbia, died at his home in Washington, June 14.

John B. Enright, M.D. University of Louisville Medical Department, 1885; for seven years professor of anatomy, Kentucky School of Medicine, Louisville; ex-alderman of Louisville, died from nephritis at Sts. Mary and Elizabeth Hospital, Louisville, June 20, after a long illness, aged 48.

Thomas B. Gunn, M.D. Missouri Medical College, St. Louis, 1874, of North Yakima, Wash., for many years secretary of the state fair board, died at St. Elizabeth's Hospital, North

Yakima, June 14, a few hours after an operation for the relief of intestinal obstruction, aged 59.

William Henry Lewis, M.D. Harvard University Medical School, Boston; Bellevue Hospital Medical College, New York City, 1865; surgeon in the Army during the Civil War, formerly of Brooklyn N. Y., died suddenly at Santa Barbara, Cal., April 21, from myocarditis, aged 63.

Edwin P. Bigelow, M.D. University of Vermont Medical Department, Burlington, 1897, of Wolcott, Vt., died at the home of his parents in Stowe, Vt., from tuberculosis, June 12, after an illness of more than a year, aged 39.

Thomas Sanderson, M.D. University of Michigan Department of Medicine and Surgery, Ann Arbor, 1863, died at his home in Kent, Ind., June 18, from heart disease, after an illness of two years, aged 67.

Martha J. French, M.D. Central College of Physicians and Surgeons of Indianapolis, 1882, of Indianapolis, died at the City Hospital in that city, June 15, from spinal disease, after an illness of three years.

John Morgan Ramsey, M.D. St. Louis College of Physicians and Surgeons, died at his home in Silver Lake, Kan., March 19, from laryngeal and pulmonary tuberculosis, after an illness of one year, aged 41.

James H. Campbell, M.D. Chicago, a practitioner of Rock and Walworth counties, Wis., for 24 years, died from cerebral hemorrhage at his home in Allen Grove, Wis., June 13, aged 73.

Thomas A. Bishop, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1883, of Bonner's Ferry, Idaho, died at St. Luke's Hospital, Spokane, Wash., June 14, aged 46.

William F. Reus, M.D., a pioneer physician of Holland, Mich., formerly of the Netherlands and the United States Navy, died at Gand Haven, Mich., June 14, aged 83.

Charles C. Norman, M.D. Long Island College Hospital, Brooklyn, 1864, died at his home in Hawesville, Ky., June 17, from dropsy, after an illness of several months.

Max Augsburger, M.D. New York City, 1880, died at his home in Brooklyn, June 15, twelve days after having been kicked in the head by a horse, aged 44.

Albert D. Leech, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1885, died at his home in Richmond, Va., June 11, after an illness of several months.

William C. Miller, M.D. Miami Medical College, Cincinnati, 1877, died at his home in Hamilton, Ohio, June 20, after an illness of several months, aged 58.

William C. Barnes, M.D. Medical College of Indiana, Indianapolis, 1874, died suddenly from heart disease, in his office at Marion, Ind., June 20, aged 55.

Charles Frank Fisler, M.D. Jefferson Medical College, Philadelphia, Pa., 1895, died at his home in Clayton, N. J., from typhoid fever, June 21.

William C. Johnson, M.D. Rush Medical College, Chicago, 1869, of Springfield, Ill., died at St. John's Hospital in that city, June 13, aged 66.

Samuel E. Johnson, M.D. (Years of Practice, Pennsylvania), a veteran of the Civil War, died at his home in New Salem, Pa., June 20, aged 61.

David White, M.D. Cincinnati, 1859, a practitioner of Ithaca, N. Y., for more than 40 years, died at his home in that city, June 17, aged 70.

Solomon J. Rhoads, M.D. St. Louis Medical College, 1864, died at his home in Beaver Dam, Ky., June 12, from senile debility.

Milton F. Schell, M.D. College of Physicians and Surgeons of Baltimore, 1887, died at his home in Baltimore, June 17.

Andrew B. Bishop, M.D. Illinois, 1883, of Los Angeles, Cal., died sudenly from heart disease in that city, June 14.

Daniel P. Neihart, M.D. Heidelberg, Germany, 1830, died at his home in Nebraska City, Neb., June 18, aged 83.

Abraham Westervelt Tompkins, M.D. New York City, 1883, died at his home in New York City, June 5.

Death of von Mikulicz.

Johann von Mikulicz-Radecki, M.D., professor of surgery at Breslau since 1890 and one of the leading surgeons of the world, died June 17, aged 55. He was born at Czernowitz, in Austria, and was Billroth's assistant at Vienna, and later professor of surgery at Cracow and Königsberg, before being called to Breslau. With Naunyn, he founded the able *Mitteilungen a. d. Grenzgebieten der Med. u. Chirurgie* in 1896, and also co-operated in the publication of von Bruns' *Beiträge zur klin. Chirurgie.* The list of his publications is a long one, many of them bearing on the perfecting of antisepsis, surgical treatment of diseases of the stomach, artificially increasing resistance of peritoneum, surgery of the pancreas, etc. His name is connected with operations for extirpating the tonsils, for prolapse of the rectum, for amputation at the ankle joint, pylorectomy, etc., and the communications from his clinic have always attracted the attention of surgeons the world around. Among the latest was the announcement in regard to Sauerbruch's pneumatic cabinet for operations inside the thorax. Mikulicz made many friends during his visit in America in 1903 and held clinics in some of the larger cities. He was an honorary member of the American Medical Association and held honorary degrees conferred by the universities of Edinburgh, Glasgow and Pennsylvania, and was an honorary member of many other scientific societies at home and abroad.

Book Notices

A NURSE'S GUIDE for the Operating Room. Second Edition. Enlarged and Revised. By N. Senn, M.D., Ph.D., LL.O., C.M. Cloth. Pp. 204. Price, $1.75 net. Chicago: W. T. Keener & Co.

This book, which has so soon reached a second edition, is a real guide for the nurse for operations. It gives directions in detail regarding preparations for operation, and also contains enough general information to give the nurse a clear idea of what she should know of surgery, of asepsis and antisepsis. Lists are also given of the instruments required for the different major and minor surgical operations.

ADDRESSES AND OTHER PAPERS, by W. W. Keen, M.D., LL.D., F.R.C.S. Illustrated. Cloth. Pp. 441. Price, $3.75 net. Philadelphia: W. B. Saunders & Co. 1905.

This book contains occasional addresses and papers, delivered and read during the past thirty years. The first paper is "The Early History of Practical Anatomy," being the introductory address at the Philadelphia School of Anatomy, 1874. This is an especially valuable paper from the historical point of view and shows considerable research. The illustrations accompanying it are excellent. The address on the "History of the Philadelphia School of Anatomy and Its Relations to Medical Teaching," was delivered at the dissolution of that school, and is of special interest to old Philadelphia medical students. The other papers are: "Our Recent Debts to Vivisection," (1885); "Recent Progress in Surgery," (1889); "The New Era in Medicine and Its Demands on the Profession and the College," (1890); "The Real Rewards of Medicine," (1893); "Medicine as a Career for Educated Men," (1893); "Vivisection and Brain Surgery," (1893); "Medical Education," (1894); "The Advantages of an Academic Training for a Medical Career," (1896); "Literary Methods in Medicine," (1897); "Address on the Unveiling of the Statue to Gross," (1897); "The Address in Surgery of the American Medical Association," (1897); "The Debt of the Public to the Medical Profession," (1899); "Endowment of the Medical Colleges" (being the president's address of the American Medical Association, 1900); "The Ideal Physician," (1900); "Address at the Royal College of Surgeons," (1900); "The Progress of Surgery in the Nineteenth Century," (1901); "The Mission of the Medical College," (1901); "The Duties and Responsibilities of Public Medical Institutions," (1903); "Qualities Essential to Success in Medicine," (1903); "The Need for Increased Endowment for Medical Institutions," (1904); "Age and Youth in Medicine," (1904), and "Surgical Reminiscences of the Civil War," (1905). A glance at the above shows that a wide range of subjects is covered, and those who know the author need not be told that each paper contains important information or good, sound advice or both.

Miscellany

The Evils of Exhaustion of Childhood.—Intemperance and crime make heavy drafts on the exchequer of organized society or government. But what is in most cases the producing microbe of intemperance? Is it not disordered nerves? Crime, again, has come to be known as depending on physical

conditions of body and mind. Exhaustion of childhood engenders disorder in young manhood and womanhood, which produces intemperance and all its consequent evils.—Rabbi Hirsch.

Wood Alcohol Has No Place in Pharmacy.—We again protest against the use of such a substance in pharmacy until after recognized authority gives pharmacists the right to use it. No pharmacopeia of any country, no dispensatory of any land, no materia medica extant, sanctions wood alcohol in any place whatever, be it as a solvent, a menstruum, or a final constituent. Until such privilege is given, or until physicians prescribe it, we contend that this poisonous liquid has no place in the pharmacy of medicine.—Lloyd, in *Eclectic Medical Journal.*

Camphor Bromid and Genito-Urinary Disturbances.—Bourneville calls attention to the efficacy of camphor bromid in reducing pain and in regulating function in the genito-urinary organs. He relates in his journal, *Progrès Médical*, for June 3, a number of instances showing that it reduces the tendency to priapism, dysuria, neuralgia of the bladder and similar troubles. He regards it as indicated in inveterate onanism, commencing with two capsules a day of .2 gm. each, not surpassing a daily dose of six capsules. He further recommends it in vaginismus, both in capsules and for local treatment in the form of an ointment.

Laymen and Physicians.—Dr. J. N. McCormack, in an address at Johnstown, Pa., before a general audience, said that on laymen, in the way of proper regard and adequate support, rests in large measure the standing of the medical profession. They can not afford to have a poor physician in the community, because as such he is endangering the health or life of some one. The clergyman, the editor, the lawyer, the banker, owe it to their own families to aid in making a better physician of every practitioner within their reach, or outside of it. They owe support to legislation which will reduce the amount of disease, for nearly all of the acute diseases, declared Dr. McCormack, are preventable by proper measures.

Purulent Ophthalmia in Mexico.—J. Ramos publishes a statistical study of blindness in Mexico in the *Anales de Oftalmologia* for May. The proportion of the blind to the total population is about 10 per cent., Mexico thus occupying the fifth place among nations. Finland, Norway, Hungary and Spain lead with a proportion of from over 22 to over 11 per cent. England follows with 9.85 per cent., France with 9.48, and Germany with 8.79 per cent, The American statistics are not included in his list. Ophthalmia neonatorum is responsible for 28 to 30 per cent. of the cases of blindness in Mexico, and he makes an urgent appeal for the establishment of a central committee to educate the public in regard to the necessity for treatment and the means of prophylaxis of purulent ophthalmia.

Research on Animals in Scientific Institutes.—At the opening of the new Institute of Physiology at Prague, Professor Gad spoke on the subject of research on living animals in scientific institutes. He dwelt on the constant endeavor in such institutions to reconcile the demands of science with those of humanity. "But," he continued, "the demands of science are imperative, and we are here to serve her. It is impossible for us to explain to outsiders the whys and wherefores of our acts. In experimental physiology the devotees of science must know how to avoid everything avoidable and, further, to keep absolutely everything connected with the science away from the gaze and ken of outsiders." The practice of this science does not brutalize; on the contrary, it has the opposite effect. One great difficulty that he has to contend with, he says, is that the attendants grow fond of laboratory animals and spoil those intrusted to their charge. Distorted and false accounts of what goes on in such institutes from what is allowed to leak out among the public are a great and unnecessary danger for independent scientific research. It is much more humane, on the whole, than it is credited with being.

Blue Light as an Anesthetic.—THE JOURNAL mentioned in 1903 that certain operators had found that blue light induced a sedative action amounting to actual anesthesia in some cases. Redard of Geneva has been systematically applying blue light as an anesthetic for some months, and the last *British Medical Journal* relates some of his experiences. All that is necessary is a sheet of blue sateen and a 1-candle power incandescent light enclosed in a blue globe. The sheet of blue sateen is thrown over the patient's head, enclosing also the light, and he is told to gaze fixedly at the light—the interval not more than 15 cm. The cloth is removed after two or three minutes, when the patient will be found in a condition of general anesthesia with dilated pupils. The anesthesia persists long enough for the performance of a short operation. Attempts to reproduce the phenomena with light of any other color than blue were always failures. Other physicians add confirmatory reports. Red light stimulates and excites to the point of irritation, while yellow light has a depressing action. Blue light is calming and produces a feeling of general well-being. Kaiser and Minin ascribe actual therapeutic value to it, and L. E. Schmidt in this country has been advocating it for cutaneous affections. He published a report on it in THE JOURNAL for 1904, xlii, page 590.

Leprosy.—The name of Dr. Juan Carrasquilla of Bogota has been connected with the serum treatment of leprosy for several years. His reputation has attracted such crowds of lepers to Colombia that the government has had difficulty in dealing with this influx of alien lepers. In a communication to be presented to the Third Latin-American Congress, to be held at Rio this year, he proclaims that his experience has convinced him more and more that leprosy is not contagious, like smallpox, etc., but that it is infectious, and that the infection is transmitted by vermin. The initial manifestation is a pustule, like the chancre of syphilis and the bubo of plague, and the discovery of this pustule enables an early diagnosis. Leprosy is not transmitted by secretions nor by air, water or direct contact, but requires the intermediation of vermin. Enforced isolation of lepers is, therefore, unnecessary, and is a cruel and inhumane relic of barbarism. Lepers should be received and treated in hospitals, and they should be induced to enter the hospitals by knowledge of the better care they receive there. Cleanliness of body and habitation and, above all, protection against vermin is the proper prophylaxis. Children should be trained in these ideas, and the public generally should be taught that this way lies health for self and friends. His pamphlet on the subject is published by Hernando Santos, Bogota.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

NORMAL SALT SOLUTION.

WASHINGTON, D. C., June 8, 1905.

To the Editor:—In THE JOURNAL, June 3, page 1794, you inform a correspondent that a normal salt solution is a 0.6 per cent. solution of sodium chlorid in water. I trust that I may be permitted to suggest that while this use of the term "normal" as applied to a salt solution of the strength named is very prevalent in the medical profession, yet such use is in decided disagreement with the significance of the term normal as applied to solutions in general and is contrary to the Pharmacopeia. The proper designation for this solution is "decinormal." The scheme of normal solutions is a system in use in analytical chemistry for certain purposes of utility and uniformity. A normal solution is defined by Billings as "one containing in one thousand cubic centimeters an amount of the active constituent just sufficient to combine with or to replace one gram of hydrogen." For monobasic aids and their salts (such as sodium chlorid) a normal solution is one in which the number of grams in the liter is equal to the molecular weight of the reagent. Thus a normal solution of potassium nitrate, the molecular weight of which is 100.93, is one containing 100.93 grams of KNO_3 in the liter; of sodium hydroxid (molecular weight 39.96), one containing 39.96 grams per liter; of hydrochloric acid (molecular weight 36.37), one containing 36.37 grams of HCl in the liter. Such is the system of normal solutions as universally used by chemists. As the molecular weight of sodium chlorid is 58.27, a normal solution of NaCl is one containing 58.37 grams in the liter. A solution of one-tenth this strength, containing 5.837 grams per liter, is a decinormal solution, and this designation is specifically applied to a solution of this strength in the U. S. Pharmacopeia (1890, page 498). A salt solution of 0.6 per cent. strength is practically a decinormal solution and should be so styled; to term it a "normal" solution, even though that usage is general among medical men, is solecistic and erroneous. The matter is perhaps not of practical importance, though it might be if a surgeon, calling on a professional chemist for a

normal salt solution, should receive one of 6 per cent. strength and use it with evil results—in which case the chemist would not be in the least to blame. In the interest of exactness and uniformity of nomenclature, it would seem that the correct designation should be used. The application of the term "physiologic" to a 0.6 per cent. NaCl solution is also open to exception, as it is now becoming generally understood that a solution of this strength is not isotonic with human blood serum, and is hence not "physiologic" in this sense. A 0.9 per cent. solution is more nearly isotonic and "physiologic," and could be used in unlimited quantities without injuring the blood cells, which is not the case with a 0.6 per cent. solution. J. B. NICHOLS.

ANSWER.—Among physicians a .6 to .75 per cent. solution of sodium chlorid in sterile water is generally known and spoken of as a physiologic or normal salt solution. The term "physiologic" is probably preferable to "normal," as there is less likelihood of the pharmacist confusing it with the normal solution of chemistry mentioned by our correspondent. Physiologic salt solution is the term generally employed abroad in designating this 0.6 per cent. salt solution.

NEW TECHNIC FOR CIRCUMCISION.

CHICAGO, June 21, 1905.

To the Editor:—In THE JOURNAL, June 17, 1905, page 1949, Dr. Gardner asks whether the operation of circumcision as he describes it has ever been advised before. You state that the method is not described in any text-books. I have never seen the operation described in any work on surgery, but I evolved a technic similar to the one described, three or four years ago, and was just about to publish it when I saw an article in *Medicine*, illustrating exactly the same procedure. I have practiced this method of circumcision for several years, and have taught it to my students at the Chicago Policlinic. It is not applicable in children nor in adults where there is phimosis, but in cases in which the foreskin can easily be stripped beyond the glans without constriction this operation is superior to the older ones, for the following reasons:

1. Incision is at base of penis and the bandage can be more readily retained and is less easily soiled.
2. No superficial veins are cut and there is no edema to retard healing; also fewer painful erections.
3. The scar is practically invisible. WILLIAM HESSERT, M.D.

EXPULSION OF PLACENTA BEFORE BIRTH OF CHILD.

ALBERT, W. VA., June 6, 1905.

To the Editor:—Are cases of complete expulsion of the placenta before the birth of the child of common occurrence? If not of common occurrence, where can I find histories of such cases?

A. P. BUTT, M.D.

ANSWER.—Expulsion of the placenta before the birth of the child in cases of placenta praevia is not extremely rare. Over fifty years ago Simpson collected 141 cases. In twin pregnancy, expulsion of the placenta of the first child sometimes occurs before the birth of the second. Prolapse of and the expulsion of a normally seated placenta before the birth of the child is very rare. A few cases of this kind have been reported since the time of Smellie. These have been collected and critically examined by Kayser in *Archiv für Gynecologie*, Volume 70.

BRITISH DEGREE IN CANADA.

INHAMBANE, EAST AFRICA, May 26, 1905.

To the Editor:—Is there a medical college in Canada that has authority to confer the L.R.C.P. and S. degree (Licentiate Royal College of Physicians and Surgeons) with recognition for it in England, on its graduates? If so, which college is it?

W. A. BACKENSTOE.

ANSWER.—No medical college in Canada can confer the licentiate degrees of the British colleges.

State Boards of Registration

COMING EXAMINATIONS.

Board of Medical Examiners, Central District, I. T., South McAlester, I. T., July 3. Secretary, B. W. Caldwell, Hugo.

Board of Medical Examiners of Arizona, Phoenix, Ariz., July 3-4. Secretary, A. Martin, Phoenix.

Utah State Medical Examiners, Salt Lake City, Utah, July 3-4. Secretary, R. W. Fisher, Salt Lake City.

North Dakota State Medical Examining Board, Grand Forks, July 5. Secretary, H. M. Wheeler, Grand Forks.

State Medical Examining Board of Washington, Seattle, Wash., July 5. Secretary, C. W. Sharples, Seattle.

State Medical Examining Boards of the Regents, State House, Concord, N. H., July 7-8. Regent, H. C. Morrison, Concord.

State Medical Board of the Arkansas Medical Society, Little Rock, July 11. Secretary, J. P. Runyan, Little Rock.

Rhode Island State Board of Health, State House at Providence, commencing at 9 a. m., July 11. Secretary, G. T. Swarts, State House, Providence.

Wisconsin Board of Medical Examiners, Park Hotel, Madison, Wis., July 11. Secretary, F. A. Forsbeck, Milwaukee.

State of Connecticut Medical Examining Board, City Hall, New Haven, Conn., July 11-12. Secretary, C. A. Tuttle, New Haven.

Maine Board of Registration of Medicine, State House, Augusta, Maine, July 11-12. Secretary, Wm. J. Maybury, Saco.

Board of Registration in Medicine, State House, Boston, Mass., July 11-12. Secretary, E. B. Harvey, Boston.

Vermont State Board of Medical Registration, Y. M. C. A. Hall, Burlington, Vt., July 11-12-13. Secretary, W. Scott May, Underhill.

Kansas State Board of Medical Registration and Examiners, State House, Topeka, Kan., July 12-13. Secretary, G. F. Johnston, Lakin.

South Dakota Board of Medical Examiners, Sioux Falls, S. Dak., July 12-13. Secretary, H. E. McNutt, Aberdeen.

Board of Medical Supervisors, Washington, D. C., July 13. Secretary, Wm. C. Woodward, Health Department, Washington.

California State Board of Medical Examiners, San Francisco and Los Angeles, Cal., July 19. Secretary, C. L. Tisdale, San Francisco.

State Board of Health of West Virginia, Charleston, W. Va., July 18-20. Secretary, H. A. Barbee, Point Pleasant.

State Board of Health of Illinois, the Great Northern Hotel, Chicago, July 19-21. Secretary, J. A. Egan, Springfield.

Illinois May Report.—Dr. J. A. Egan, secretary of the State Board of Health of Illinois, reports the written examination held at East St. Louis, May 10-12, 1905. The number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of persons examined was 124, of whom 119 passed and 5 failed. The following colleges were represented:

PASSED.

College.	Year Grad.	Per Cent
American Med. Coll., St. Louis	(1905)	82
Baltimore Med. Coll.	(1901)	85
Creighton Med. Coll., Omaha	(1902)	81
Eclectic Med. Inst., Cincinnati	(1905)	81
Homeopathic Med. Coll., St. Louis	(1905)	81, 81
Johns Hopkins University	(1902)	88

Barnes Med. Coll., St. Louis (1904) 84; (1905). The grade of 78 was reached by one; 79, by four; 80, by one; 81, by two; 82, by one; 83, by two; 84, by one; 85, by four; 88 by one.

College of P. & S., St. Louis (1905). The grades of 75, 78, 79 and 80 were reached by one each; 81, by two; 82, by four; 83, by four; 84, by four; 85, by two; 86, 87 and 88, by one each.

Marion-Sims Beaumont Med. Coll. (1904) 78, 79; (1905). The grades of 75 and 76 were reached by one each; 78, by three; 79, by two; 80, by four; 81, by seven; 82, by two; 83, by six; 84, by four; 85 by three; 86, by two; 87, by one; 88, by one; 89, by two; 90, by two; 91, by two.

Washington University, St. Louis (1903) 83; (1905). The grades of 77, 80 and 82 were reached by one each; 83, by four; 84, by four; 85, by eight; 86, by four; 90, by one; 91, by one.

FAILED.

Barnes Med. Coll., St. Louis	(1905)	74
College of P. & S., St. Louis	(1904) 55; (*1905)	73
Marion-Sims Beaumont	(1905)	74, 74

* Second examination.

The general average attained by all representatives of Barnes Medical College was passed was 83; of College of Physicians and Surgeons, St. Louis, 82.6; of Marion-Sims Beaumont 82.6; of Washington University, 84.4.

The Public Service

Army Changes.

Memorandum of changes of stations and duties of medical officers U. S. Army, week ending June 24, 1905:

Ebert, Rudolph G., surgeon, Woodruff, Chas. E., surgeon, and Carroll, James, asst.-surgeon, detailed to represent the Medical Department of the Army, at the annual meeting of the American Medical Association at Portland, Ore., July 11 to 14, 1905.

Patterson, Robert U., asst.-surgeon, assigned to duty with Co. B, Hospital Corps, Presidio of San Francisco, Cal.

Bradley, A. E., surgeon, assigned to duty at Fort Sheridan, Ill.

Snyder, Henry D., surgeon, granted three months' leave of absence.

Richard, Charles, surgeon, assigned to duty at Fort Jay, N. Y.

Ruffner, E. L., asst.-surgeon, assigned to duty at Columbus Barracks, Ohio.

Whitmore, E. R., asst.-surgeon, assigned to duty at Fort Jay, N. Y.

Boyer, Perry L., asst.-surgeon, assigned to duty at Fort Sam Houston, Texas.

Phalen, James M., assigned to duty at Fort Logan H. Roots, Arkansas.

O'Connor, R. P., asst.-surgeon, assigned to duty at Army General Hospital, Presidio of San Francisco, Cal.

Vose, Wm. E., asst.-surgeon, relieved from duty at Fort Logan H. Roots, Ark., and ordered to Fort Sheridan, Ill., for duty.

Richard, Charles, surgeon, granted thirty days' leave of absence.

Carter, Edward C., surgeon, granted ten days' leave of absence.

Bradley, A. E., surgeon, granted leave of absence for one month and fifteen days.

Wilson, Wm. H., asst.-surgeon, assigned to duty as attending surgeon and examiner of recruits, and as medical superintendent of the Army Transport Service, New York City, N. Y.

Godfrey, G. C. M., asst.-surgeon, relieved from duty as attending surgeon and examiner of recruits, and as medical superintendent, Army Transport Service, New York City, N. Y., and will retain station in that city until further orders.

Pierson, Robert H., asst.-surgeon, relieved from duty at Army General Hospital, Fort Bayard, N. M., and ordered to Fort St. Michael, Alaska.

Smart, Wm. M., asst.-surgeon, relieved from duty at Fort St. Michael, Alaska, and ordered to proceed to Seattle, Washington, and report to the Military Secretary of the Army for further orders.

Howard, D. C., asst.-surgeon, granted thirty days' leave of absence about July 1, 1905.

Kiersted, H. S., asst-surgeon, ordered to report to Lieut.Col. Geo. H. Torney, deputy surgeon general, president examining board, Army General Hospital, Presidio of San Francisco, Cal., Aug. 1, 1905, for examination to determine his fitness for advancement to rank of captain.

Phillips, John L., surgeon, ordered to proceed from Fort Jay, N. Y., to this city and report in person to the chairman of the Isthmian Canal Commission for duty with the commission on the Isthmus of Panama.

Le Wald, Leon T., asst.-surgeon, left San Francisco, Cal., on thirty days' leave of absence.

Peed, George P., asst-surgeon, granted thirty days' leave of absence.

Harvey, Philip F., asst-surgeon-general, left C. S. O., Department of the Lakes, Chicago, Ill., on thirty days' leave of absence.

Hartsock, F. M., asst.-surgeon, granted thirty days' leave of absence.

Roberts, Ernest E., contract surgeon, arrived at San Francisco, Cal., on S. S. *China*, for three months' leave of absence, from the Philippines Division.

Gardner, Fletcher, contract surgeon, arrived at San Francisco, Cal., on the transport *Thomas* for three months' leave of absence from the Philippines Division.

Bowman, Madison H., contract surgeon, arrived at Seattle, Wash., on transport *Dix* for three months' leave of absence from the Philippines division.

Hicks, John R., contract surgeon, arrived at Seattle, Wash., on transport *Dix* for annulment of contract.

Suggs, Frank, contract surgeon, arrived at San Francisco, Cal., from the Philippines Division, on the transport *Thomas* for treatment.

Navy Changes.

Changes in the Medical Corps, U. S. Navy, for the week ending June 24, 1905.

Chapman, R. B., asst-surgeon, orders of April 19, 1905, modified; ordered to Naval Station, Guam, L. I.

Hart, G. C., acting asst.-surgeon, detached from duty with the marine detachment at Dry Tortugas, Fla., and ordered home to wait orders.

DeLancy, C. H., P. A. surgeon, detached from the *Marblehead* and ordered home to wait orders.

Hoen, W. S., asst.-surgeon, detached from the *Zafiro* and ordered to the *Marblehead*.

Murphy, J. F., asst.-surgeon, detached from the *Hancock*, June 23, and ordered to the Naval Recruiting Station, Buffalo, N. Y., June 23.

Nelson, H. T., asst.-Surgeon, detached from the Naval Hospital, Washington, D. C., June 27, and ordered to the Naval Proving Grounds, Indian Head, Md., June 28.

Mears, J. B., acting asst.-surgeon, detached from the Naval Recruiting Station, Buffalo, N. Y., June 24, and ordered to Washington, D. C., for examination for appointment as asst.-surgeon, and then wait orders.

Shipp, E. M., surgeon, detached from the Naval Medical School, Washington, D. C., July 27, and ordered to duty at the Naval Hospital, New York, N. Y.

Bell, W. L., P. A. surgeon, having been examined by a retiring board, and found incapacitated for active service on account of disability incident thereto, is retired from active service under the provisions of Section 1,453 Revised Statutes.

Iden, J. H., P. A. surgeon, detached from the Naval Medical School Washington, D. C., June 26, and ordered home to wait orders.

Campbell, R. A., acting asst.-surgeon detached from duty with the second torpedo flotilla on board the *Worden* and ordered to Utica, N. Y., July 1, for duty with naval recruiting party No. 5.

Judd, H. W., acting asst.-surgeon, detached from the Naval Proving Ground, Indian Head, Md., June 28, and ordered to Huntington, W. V., July 1, for duty with naval recruiting party No. 4.

Spratling, L. W., surgeon, detached from duty with the Isthmian Canal Commission and ordered home to wait orders.

Holloway, J. H., asst.-surgeon, detached from the *Baltimore* and ordered home.

Traynor, J. P., asst.-surgeon, detached from the *Rainbow*, and ordered home.

Bachmann, B. A., asst.-surgeon, detached from the *Villalobos*, June 23, and ordered home.

Dykes, J. B., asst.-surgeon, detached from the Naval Station, Cavite, P. I., June 23, and ordered to the *Baltimore*.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine Hospital Service for the seven days ending June 21, 1905.

Geddings, H. D., assistant surgeon general, to proceed to Baltimore for special temporary duty.

Eager, J. M., assistant surgeon general, granted leave of absence for nine days from June 30.

Peckham, C. T., surgeon, granted leave of absence for twenty days, from July 10.

Korn, W. A., passed assistant surgeon, granted leave of absence for one day, June 27.

Cleaves, F. H., acting assistant surgeon, granted leave of absence for 23 days, from July 10.

Drew, A. D., acting assistant surgeon, granted leave of absence for four days, under paragraph 210 of the regulations.

Hammond, A. P., acting assistant surgeon, granted leave of absence for 14 days, from June 17.

Keatley, H. W., acting assistant surgeon, granted leave of absence for one day, June 22.

McCormac, J. T., acting assistant surgeon, granted leave of absence for 15 days, from July 9.

Richardson, N. D., acting assistant surgeon, granted leave of absence for five days, from June 12, 1905, under paragraph 210 of the regulations.

Walkley, W. S., acting assistant surgeon, granted leave of absence for nine days, from June 27.

Achenbach, J., pharmacist, granted leave of absence for thirty days, from May 15, on account of sickness.

Gibson, F. L., pharmacist, granted leave of absence for twelve days, from June 18.

Holt, E. M., pharmacist, granted leave of absence for twenty-nine days, from July 3.

BOARD CONVENED.

Board to meet at the Marine-Hospital, Boston, for the physical examination of an officer of the Revenue Cutter Service, June 21, 1905. Detail for the board: Surgeon R. M. Woodward, chairman; Assistant Surgeon W. C. Rucker, recorder.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon General, Public Health and Marine-Hospital Service, during the period from June 16 to June 24, 1905:

SMALLPOX—UNITED STATES.

California: Los Angeles, June 3-10, 1 case.
Florida: Jacksonville, June 10-17, 1 case.
Illinois: Chicago, June 10-17, 15 cases; Danville, June 8-15, 3 cases.
Indiana: South Bend, June 10-17, 7 cases, 1 death.
Louisiana, New Orleans, June 10-17, 2 cases.
Massachusetts: Lowell, June 10-17, 1 case.
Michigan: Grand Rapids, June 18-25, 29 cases, 5 deaths.
Missouri: St. Louis, June 10-17, 4 cases, 1 death.
Nebraska: South Omaha, June 3-10, 6 cases.
Ohio: Toledo, June 3-10, 9 cases.
Pennsylvania: York, June 10-17, 3 cases.
Tennessee: Memphis, June 10-17, 1 case.
Wisconsin: LaCrosse, June 10-17, 4 cases; Milwaukee, June 3-10, 3 cases.

SMALLPOX—FOREIGN.

Africa: Cape Town, May 6-13, 3 cases.
Brazil: Bahia, April 27-May 13, 16 cases, 1 death. Rio de Janeiro, May 14-28, 15 cases, 6 deaths.
Ceylon: Colombo, May 6-13, 1 case, 1 death.
Denmark: Copenhagen, May 20-June 3, 2 cases.
Great Britain: Bristol, May 27-June 3, 1 case; London, 1 case; New Castle-on-Tyne, 2 cases; South Shields, 2 cases.
India: Bombay, May 8-16, 34 deaths; Calcutta, May 6-13, 5 deaths; Karachi, May 7-14, 1 case, 1 death.
Italy: Catania, May 27-June 8, 52 cases, 10 deaths; Lecce Province, May 18-25, 9 cases; Palermo, May 20-27, 2 cases, 2 deaths.
Mexico: City of Mexico, April 8-June 3, 65 cases, 35 deaths.
Russia: Moscow, May 13-27, 45 cases, 12 deaths; Odessa, May 6-27, 45 cases, 8 deaths; St. Petersburg, May 13-27, 19 cases, 1 death.
West Indies: Grenada, May 23-28, 2 cases.

YELLOW FEVER—FOREIGN.

Brazil: Rio de Janeiro, May 14-28, 74 cases, 24 deaths.
Ecuador: Guayaquil, May 16-23, 2 deaths.
Honduras: Puerto Cortez, May 25-June 6, 8 cases, 4 deaths.
Mexico: Coatzacoalcos, May 4-10, 3 cases. Tierra Blanca, June 4-10, 2 cases, 1 death.
Panama: Colon, Jan. 23-June 11, 27 cases, 7 deaths; Panama, Jan. 1-June 10, 78 cases, 25 deaths.

CHOLERA—FOREIGN.

India: Calcutta, May 6-13, 31 deaths.

PLAGUE—INSULAR.

Hawaii: Waipahu, June 20, 1 death.
Philippine Islands: Cebu, April 29-May 2, 2 cases, 2 deaths; Manila, April 29-May 6, 2 cases, 1 death.

PLAGUE—FOREIGN.

Africa: East London, May 6-13, 8 cases, 4 deaths; Mousa, 1 case, 1 death.
Brazil: Sao Paulo, April 30-May 7, 1 death.
India: Bombay, May 9-16, 659 deaths; Calcutta, May 6-13, 324 deaths; Karachi, May 7-14, 158 cases, 142 deaths.

Society Proceedings

COMING MEETINGS.

AMERICAN MEDICAL ASSOCIATION, Portland, Ore., July 11-14, 1905.

American Surgical Association, San Francisco, Cal., July 5-7.
South Dakota State Medical Association, Deadwood, July 5-7.
Amer. Assn. of Life Ins. Exam. Surgeons, Portland, Ore., July 10.
American Medical Editors' Assn., Portland, Ore., July 10.
American Urological Association, Portland, Ore., July 12-13.

NEW YORK NEUROLOGICAL SOCIETY.

Regular Meeting, held May 9, 1905.

The President, DR. JOSEPH FRAENKEL, in the Chair.

Acute Psychoses During Tabes.

DR. GEORGE H. KIRBY presented a woman, 50 years old, whose family history was negative. Her early development had been normal. She was married at 18 and had nine children. The last child was born fifteen years ago and died at eighteen months. It was delicate from birth; its hair fell out, and it had some eye trouble which the doctor told her

had been inherited. She questioned her husband at the time about a venereal disease, but he denied infection. She believed, however, that he had been treated shortly before this for some such disease. She had never seen any signs of disease on his body. She herself has had no sore, so far as she knew. She never became pregnant again.

About eight years later, i. e., in 1899, she began to have headaches and shooting pains in her legs. In January, 1903, she suddenly became exhilarated and lively. She spent money foolishly and began to drink. During her periods of excitement she had several fainting spells, but no convulsions. The knee jerks were absent; Argyll Robertson pupil; some Romberg swaying, and greatly diminished pain sensibility below the knees. There was fine, regular tremor of the tongue and hands; no speech defect. She was quiet, pleasant in manner, perfectly oriented in time and place; she answered questions freely, was connected in speech, but tremendously expansive. There was no memory defect for either recent or remote events, but in her statements of certain remote dates there were discrepancies which she only partially realized and was not able to fully correct. Her attention was good; she retained names and numbers well. After she had been in the hospital two and a half months, she rather suddenly became clear mentally, gained full insight into her previously expressed grandiose ideas, and her memory was without defect. The physical signs of tabes remained unchanged. She left the hospital on June 27, 1903.

A few months after her return home she began to suffer from pains in the back and a sensation of constriction about the waist. She had difficulty in walking, and her legs would suddenly give way; or, if she bent over, she was apt to fall on her face. Her tabetic symptoms had been progressive, with no return of the mental trouble. She was now helpless so far as locomotion went. The joints were relaxed. Deep sensibility was lost in both legs. Three months ago she had an enormously swollen hip, which appeared rather suddenly and without pain; this had recently disappeared. The patient showed a wonderful amount of energy and perseverance. By crawling about on the floor and having things put where she could get them, she did her own housework, cooking, washing, etc. Her memory remained good, and she retained a full insight of her previous mental attack.

Progressive Lesion of the Root of the Fifth Nerve, Producing Motor, Sensory and Trophic Symptoms.

DR. J. RAMSAY HUNT exhibited a man, 59 years old, who had been a submarine diver for forty years. At the age of 25 he had a chancre of doubtful nature. His present disease began about sixteen months ago, and consisted of disagreeable drawing sensations and paresthesia on the left side of the face, in the distribution of the left fifth nerve. With this there was an associated weakness of mastication on the same side, and a tendency to a constantly chewing motion, which still persisted. Since the onset up to the present time, the affection had been gradually progressive. After a descent 45 feet below the surface, he noticed that he could not see with the left eye, and an oculist who examined the interior of the eye said that there had been a hemorrhage. On attempting to use the telephone, he noticed that he could not hear in the left ear. There was not, nor had there been any tinnitus aurium. Within two weeks the sight returned to the left eye and the hearing was restored to the left ear.

The symptoms in the region of the left fifth nerve continued to increase, and consisted of paresthesia and weakness in the distribution of the left trifacial nerve, associated with an incomplete anesthesia to touch, pain and temperature in the same area, and including the mucous membrane of the eye, nose, tongue and mouth on the affected side. There was an absence of the conjunctival and corneal reflex on the left side. He had a drawing sensation in the left face and gums, a feeling of irritation in the left eye, and the left nostril did not feel free. He had at no time had pains in the left face. The sense of taste was diminished on the left side, and the sense of smell, although not very acute on either side, was also diminished on the left. The left face was smaller than the right, and this did not seem to be entirely explained by the wasting of the temporal and masseters, which were atrophied on the left side. A large section of the frontalis muscle was wasted, and did not respond either to voluntary innervation or to electricity. The following oculopupillary symptom was present on the left side, i. e., slight ptosis, enophthalmus, and moderate dilatation of the pupil. Attempts to test the sweat secretion of the face by the administration of pilocarpin, and the tear secretion by irritation of the conjunctiva were negative.

The other cranial nerves, the gross motor power, the gait and station, the tendon, skin and pupillary reflexes were all negative. He had occasional vertiginous seizures and suffered somewhat from insomnia, but no headaches. The motor, sensory and trophic symptoms, without root pains, suggested a lesion of the nuclei of origin of the left fifth nerve. The nystagmus also indicate pressure in the pons. The retinal hemorrhages must be regarded as an accidental complication. The temporary deafness, without tinnitus and with complete restoration of hearing, was more difficult of interpretation. Symptoms of hysteria were wanting. The nature of the process might only be conjectured; it was however, progressive and unassociated with general symptoms of tumor.

DR. CHARLES L. DANA said he had an opportunity to examine this case. There seemed to be a progressive facial hemiatrophy, with progressive loss of function of the fifth nerve. There was no pain nor symptom of tumor. The condition could best be explained by some morbid or degenerative condition involving the nuclei of the fifth nerve, possibly a gliosis or a parasyphilitic lesion. The case might eventually turn out to be an aberrant form of tabes. Dr. Dana said he had seen some cases of tabes with these peculiar symptoms, but never with a progressive facial hemiatrophy developing in this artificial way.

Case of Lead Poisoning, Probably Complicated by General Paralysis.

DR. C. B. DUNLAP showed a man, 47 years old, a painter, who was admitted to one of the state hospitals and died there seven months later. He had had painter's colic two years before admission, and had not been considered well since that time, though he had worked at odd jobs up to a week before entrance, at which time he left his boarding-house, was found wandering in the street in an aimless, bewildered way. At the hospital he appeared to be much exhausted, dejected and apathetic. He did not know where he was, or the nature of the place or the date, and gave the date of his own birth incorrectly. He claimed to hear a voice that he could not place.

Examination showed sluggish reaction of the pupils to light and accommodation. The tongue was tremulous. There was partial paralysis of the left arm and hand, and a much-weakened grip on that side. There was apparent wasting of the muscles of the thenar and hypothenar group. This wasting was also present on the right side, but less marked. The elbow, wrist and thumb reflexes were present on both sides. There was slightly diminished pain sensation on the ulnar side of the left arm. There was apparent wasting of the shoulder muscles, more marked on the left side; also of the back and gluteal muscles. The anterior tibial muscles showed some weakening, more marked on the left side. The knee jerks were exaggerated; the plantar reflexes diminished. No clonus; no Babinski; no sensory disturbances.

In November he complained of vague pains in his legs. The following month he became irritable and quarrelsome, and subsequently his gait became unsteady. The latter part of January he began to show marked inco-ordination, with great exaggeration of the patellar reflexes. The muscles of the legs, hands and tongue showed a marked tremor, and there was a peculiar trembling speech intonation, with failure to properly pronounce many words. By the middle of February the speech was worse, and the hands so ataxic and tremulous that he could not feed himself. Mentally, he was depressed and worried about himself. Four days before death the incoordination was jerky, almost spastic at times. He was almost hypersensitive to pain stimuli. Wasting of the interossei of

the hands and feet and of the muscles generally was noted. All the muscles responded to the galvanic current, but the response was slight in the gastrocnemii and interossei. The day preceding his death the twitching of the muscle-groups was still more marked.

AUTOPSY: There was hypostatic congestion of the lungs; the spleen was soft and somewhat enlarged. The pia arachnoid was thickened and water-logged. The brain showed considerable thickness and toughness of the pia of the convexity and base. The basal vessels were fairly thin; there was no atheroma. There were no gross lesions, and on section, the appearance was normal, with nothing to explain the partial paralysis of the left arm and hand. There were no granulations in the fourth ventricle. Microscopically, sections taken from the paracentral and frontal cortex of the formalin-hardened brain showed the typical changes found in general paralysis, namely, infiltration of the pia with lymphoid and plasma cells, infiltration of the walls of the cortical vessels with the same elements and with pigment and pigment-carrying cells. There was also marked apparent increase in vascularity of the cortex; also pain neuroglia reaction, seen in the first layer of the cortex in the form of numerous spider cells; disorganization of the cortex layers, and numerous rod cells, such as Nissl and Altheimer, found to be quite constant in general paralysis, and unusual elsewhere. The walls of many of the larger cortex vessels were so packed with cellular elements and so broken up that the different coats were indistinguishable, and the lumen was often hard to find. Marchi stains of the paracentral lobules showed a few myelin-sheaths which were broken up into rows of fat droplets, indicating a myelin decay of moderate degree. In sections of the spinal cord from the cervical thoracic and lumbar regions, a diffuse myelin degeneration was evident in the anterior or posterior roots.

DR. T. P. PROUT referred to three toxic cases resembling that reported by Dr. Dunlap, but none of them came to autopsy. The toxic symptoms that were particularly prominent were decided somnolence and a passive depression. All three of those patients came from a factory where rubber was manufactured, and Prout was inclined to attribute the toxemia to noxious gases inhaled by the men.

Case of Brain Neoplasm.

DR. WILLIAM B. NOYES presented an Italian boy, 11 years old, whose family and previous personal history was negative. He was one of eight children, three of whom had died at birth. There was no history of syphilis or tuberculosis. Two months ago he developed some affection of the eyelids resembling ptosis; this was noticed first on the right side, and disappeared after a month on the application of a leech behind the ear. The left eye became similarly affected a month after the appearance of the condition on the right side. He has complained of frequent headache, located in the region of the right ear and right frontal region.

Examination showed the following condition: A left facial paralysis of a peculiar type, with continuous spasm and twitching of the orbicularis palpebrarum and blepharospasm. Reaction to faradism absent. The tongue showed choreiform movements or a fine fibrillary twitching. There was double choked disc; no paralysis. The temperature usually ranged between 99 in the morning and 100 or 101 F. in the evening. An internal strabismus subsequently developed, due apparently to overactivity of the internal rectus rather than to paralysis of the external rectus. The conjunctiva of the left eye was anesthetic, but there did not seem to be any other fifth nerve symptom. The left knee jerk became exaggerated; there was some ataxia on standing with the eyes closed. The headaches recurred frequently, though yielding to ergot. The boy's general health remained good enough to permit him to play in the yard. The case was regarded as one of cerebral neoplasm, located in the pons, or, according to the view of one observer, in the facial center in the cortex. The nature of the neoplasm was doubtful, excepting that the temperature strongly suggested an abscess. The symptoms, however, seemed to be too distinctly limited to make an abscess probable.

DR. WILLIAM M. LESZYNSKY said that one of the interesting peculiarities of the case shown by Dr. Noyes was the left facial spasm, a certain degree of which was sometimes noted after a facial paralysis in older patients. From the history of Dr. Noyes' case the speaker said he would be rather led to infer that the lesion, instead of being an actual neoplasm, was probably a disseminated one, or that the symptoms were due to a certain amount of basilar meningitis. It was hardly necessary to assume the presence of a neoplasm on account of the extensive choked disc, and he doubted whether any ophthalmologist who looked into the eye and found hemorrhages and choked disc could make the diagnosis of a neoplasm in contraindication to a basilar meningitis.

Incomplete Transverse Myelitis from Exposure After Working in Caisson.

DR. I. ABRAHAMSON'S patient, M. G., male; a Russian laborer, came under observation on March 23, 1905. His family history was unimportant. Seven years ago the patient had typhoid fever. He had long been addicted to the excessive use of beer and cigarettes. Denied venereal infection. Up to fourteen months ago he worked for three hours daily in a caisson. For three days previous to the onset of his present illness he had been dissipating and drinking heavily. He entered the exhaust-chamber feeling ill at ease, and remained there twenty minutes; while there he drank some hot coffee, and then went out into the rain without adequate protection,and reached his home soaked and cold. About ten minutes after leaving the exhaust-chamber he began to vomit, and was seized with violent pains in the epigastrium. He felt cold, with chilly sensations and numbness in the legs, especially the left. At the same time there was increasing weakness in the legs, so that within fifteen minutes after going to bed he was completely paralyzed from the umbilicus down. There was also retention of urine and feces, and marked dyspnea and palpitation. After a month or so he slowly began to improve, but he still suffered from constipation and delayed urination. The gait was very spastic, with slight unsteadiness. The lesion in this case was an incomplete transverse myelitis. Etiologically, the case illustrated the importance of alcoholism and exposure as predisposing to caisson myelitis, facts which numerous writers have accentuated.

Syringomyelia.

DR. ABRAHAMSON exhibited a man, 42 years old, a tailor by occupation. His father died of tuberculosis; his mother of gangrene of the leg. He had five living sisters, who were all well. He suffered from frequent attacks of bronchitis; denied a venereal history; used alcohol and tobacco in moderation. Eight years ago he fell on the ice, striking his back. He did not lose consciousness, but suffered severely from pain in the region of the thorax on both sides. He remained in bed one week, and then returned to work. For two years previous to his injury he had suffered from tingling and cold paresthesia in the left upper extremity, which he attributed to his habit of sleeping on the left side, resting his head on his hand, and thus compressing the left arm. The fall apparently aggravated his symptoms, and subsequently he noticed that his fingers were numb, and that he could not feel objects distinctly with his left hand. With this hand he also failed to distinguish between hot and cold with certainty. The numbness and loss of sensation gradually extended to the left supraspinatus region, the occiput, and more recently to the submaxillary region, the left anterior chest, the left posterior thorax and finally the right shoulder and arm were involved in the area of cold paresthesia. The patient complained of pain in the left interscapular region during the past eight months and of a sense of constriction about the left chest, neck and occiput, as if the entire region was encased in plaster. In the neck he had a choking sensation, interfering with swallowing and speaking, and the left ear seemed to be blocked at times. Eight months ago he noticed that the left upper extremity was weak, with wasting in the thenar region. Re-

cently fibrillary twitchings developed in this arm, with excessive perspiration in the left axilla. There was no rash; no joint changes; no trophic skin changes. There was some delay in urination, and the bowels were costive. There was a diminution of sexual potency. No diplopia; the other special senses were normal. The spinal column was scoliotic, with a convexity to the left in the cervical, and to the right in the dorsal region. In walking, the patient dragged the left leg somewhat; no Romberg. The upper border of sensory disturbances corresponded exactly to the sensory distribution of the first cervical segment on one side only.

Some Forms of Toxic Deliria.

DR. GEORGE H. KIRBY reported three cases of toxic deliria. The first of these was due to the excessive and continuous use of phenacetin; the second to the use of chloral taken after alcoholic excesses, and the third to the use of bromids for the relief of insomnia. These cases all had certain symptoms in common. The patients were not clear as to their surroundings; they apprehended readily what was said to them and were able to grasp, more or less, the simple relations which came under their own eyes, but they invariably mistook the situation in which they were placed. They were especially confused over the identity of persons, while time orientation suffered comparatively little. Consciousness regarding their own personality remained intact, and with one exception, the patient's grasp on the remote past was clear. Perhaps the most striking symptom was the tendency to produce spontaneously detailed accounts of extraordinary occurrences, dream-like in character, and mostly of a terrifying and fearful content. Especially noteworthy was the fact that motor agitation and fear reactions might be entirely absent. Improvement in all the cases was gradual, and the belief in the delirious experiences remained some time after the patients were otherwise clear. The condition had to be differentiated from (1) delirium tremens; (2) general paralysis; (3) Korsakoff's psychosis; (4) the great variety of symptom types in the infective-exhaustive group of psychoses.

NEW MEXICO MEDICAL SOCIETY.

Twenty-Fourth Annual Meeting, held at Las Vegas, May 10 and 11, 1905.

The President, Dr. EDWARD B. SHAW, Las Vegas, in the chair.

Welcome.

Mayor F. E. Olney welcomed the association to Las Vegas, and Dr. John F. Pearce, Albuquerque, responded in behalf of the association.

Memorial Resolutions.

The society passed resolutions regarding the deaths of the following members, who had died during the past year: Drs. Ernest J. Mellish, El Paso, Texas; Charles G. Cruikshank, San Marcial, and Jacob E. Mohr, Las Vegas.

Election of Officers.

Officers for the ensuing year were elected as follows: Dr. Percy G. Cornish, Albuquerque, president; Drs. Thomas B. Hart, Raton; William E. Parkhurst, Roswell, and Bruce E. Lane, Las Cruces, vice-presidents; Dr. Guy H. Fitzgerald, Albuquerque, secretary; Dr. Henry M. Smith, Las Vegas, treasurer; Drs. Enoch W. Tipton, Silver City; George W. Harrison, Albuquerque, and Samuel B. Swope, Deming, councilors.

Society Journal.

It was decided to publish a medical journal as an official organ of the society, and Dr. Guy H. Fitzgerald was elected editor, and Dr. Percy G. Cornish assistant editor, both of Albuquerque.

Entertainment.

At the annual banquet held at the Castenada, Justice W. J. Mills delivered the address of the occasion. The visiting ladies were entertained by the wives of the Las Vegas medical profession at the home of Dr. W. Curtiss Bailey, and luncheon was also served at the Romero Ranch.

RHODE ISLAND MEDICAL SOCIETY.

Ninety-Fourth Annual Meeting, held in Providence, June 1.

The President, DR. WILLIAM R. WHITE, Providence, in the chair.

New Officers.

At the meeting of the House of Delegates the following officers were elected: President, Dr. Christopher F. Barker, Newport; vice-presidents, Drs. Charles V. Chapin, Providence, and Frank B. Fuller, Pawtucket; secretary, Dr. Stephen A. Welch, Providence; treasurer, Dr. George S. Mathews, Providence; curator, Dr. William J. McCaw, Providence; auditor, Dr. Edwin B. Harvey, Providence, and delegate to the American Medical Association for 1906-7, Dr. John Champlin, Westerly.

Committees.

The following standing committees were elected: Arrangements, Drs. William B. Cutts, Pearl Williams and Herbert G. Partridge, all of Providence; publication, Drs. George D. Hersey, Clarence M. Godding and Gardner T. Swartz, all of Providence; library, Drs. Horace G. Miller, George D. Hersey, George W. Porter, George L. Collins and Frank L. Day, all of Providence; necrology, Drs. Helen C. Putnam and Edwin B. Harvey, Providence, and Lucius F. C. Garvin, Lonsdale; legislation, Drs. Gardner T. Swartz, William F. Gleason and Walter L. Munro of Providence, the president and the secretary; building, Drs. Horace G. Miller, John W. Mitchell, Robert F. Noyes, Fenner H. Peckhem and Frederick T. Rogers, all of Providence.

Fiske Fund Prize.

Dr. Halsey De Wolf announced that the $250 Fiske Fund prize had been awarded to Dr. W. Louis Chapman, Providence, for his essay entitled "The Complications of Gonorrhea in Both Sexes," this being the second time that this prize has been awarded him.

Presentations.

A portrait of Dr. Lewis Leprellett Miller was given the society by Edward Carrington, through the courtesy of Dr. George L. Collins. A diploma from the Medical School of Brown University, awarded in 1826 to Dr. Joshua Rose of South Kingston, was presented to the society, and Dr. Horace G. Miller, Providence, presented the society with his collection of books on ophthalmology and otology.

Banquet.

At the annual banquet, Dr. Edward E. Pierce acted as anniversary chairman, and addresses were made by President William H. P. Faunce of Brown University, Secretary of State Charles P. Bennett, and Dr. John C. Pegram, Providence.

The next meeting will be held at Newport, September 7.

MASSACHUSETTS MEDICAL SOCIETY.

One Hundred and Twenty-fourth Annual Meeting, held in Boston, June 13-14, 1905.

The President, DR. ARTHUR J. CABOT, Boston, in the Chair.

The morning of June 13 was devoted to visits at the various hospitals of Boston and to the antitoxin and vaccine laboratories of the State Board of Health. In the afternoon the society met in two sections at the Boston Medical Library.

Councilors' Meeting.

The Secretary reported the names of 37 fellows who have died during the year and of 171 new members, making a total of about 3,000. The treasurer reported total receipts during the year of $24,729.38, and a balance on hand of $11,199.05, besides some $30.000 permanent invested funds.

Officers Elected.

President, Dr. Arthur T. Cabot, Boston; vice-president, Dr. Frederick H. Thompson, Fitchburg; treasurer, Dr. Edward M. Buckingham, Boston; corresponding secretary Dr. Charles

W. Swan, Brookline; recording secretary, Dr. Francis W. Goss, Roxbury; librarian, Dr. Edwin H. Brigham, Boston.

The next annual meeting will be held in Boston, June, 1906.

Resolutions.

A resolution asking the legislature to require the annual inspection of the eyes and ears of school children was referred to the committee on state and national legislation with full powers.

A resolution was passed approving the recent efforts of the Postmaster-General to check the activities of certain charlatans and quacks by refusing them the use of the facilities of the mails.

SECTION IN MEDICINE.

DR. GEORGE W. GAY, of Newton, Chairman.

Some Interesting Features Connected with the Outbreak of Smallpox in North Adams in 1904.

DR. LYMAN A. JONES, North Adams, said that his city has a large population of Canadian cotton operatives who are careless about vaccination. The first case occurred July 8 and was promptly quarantined. The second case, August 2, was soon followed by a large number of others. Subsequently, however, these were proven to have originated in three other unreported cases; two imported from Canada, one so mild as to be unrecognized. Spread of the disease was also probably aided by a physician treating undetected cases. The coincidence of epidemics of measles and chicken pox made diagnosis more difficult, as did the thorough vaccination of a family who had mild varioloid and did not seek any medical aid, but transmitted variola to others. The local Board of Health succeeded in checking the epidemic, the last case occurring October 14. They attribute their success to the choice of a house in a new unoccupied block as an isolation hospital, and the use of a second and later a third house in the same block for purposes of detention of all suspects. This made possible the thorough cleaning and fumigation of all infected spots, and rigid enforcement of vaccination.

DISCUSSION.

DR. JOHN H. MCCOLLOM, superintendent of the South Department of the Boston City Hospital, emphasized the importance of every municipality having a smallpox hospital ready for use. A house of detention is a necessity for cases impossible of diagnosis. Chickenpox, measles, syphilis and K. I. rash must all be carefully excluded. There is no reason to believe that smallpox is an air-borne disease, but often, as was here demonstrated, there are several foci of infection.

Ocular Vertigo of Interest to the General Practitioner.

DR. BENJAMIN P. CROFT, Greenfield, said vertigo may result from (1) paralysis of the ocular muscles; (2) ocular muscle imbalance; (3) eyestrain. He cited cases to show how they are often promptly relieved and cured by the removal of the ocular defect, after having been treated unsuccessfully for weeks or months.

Value of Hydrochloric Acid in Diseases of the Stomach.

DR. RICHARD F. CHASE, Brookline, stated that this acid is used either as a (a) stomachic; (b) to supply a deficiency or to prevent fermentation; (c) with pepsin to attain digestion, or (d) to stimulate the gastric glands or the pancreatic activities. In order to make up for its absence, as much as 1 oz. of a 10 per cent. solution daily would be needed, which is impracticable. For the same reason it is useless to give it with pepsin. Instead of stimulating the secretion of acid, it diminishes secretion. Its use is therefore limited to the alleviation of symptoms of indigestion of a functional or nervous origin.

Medical Treatment of Hyperacidity and Gastric Ulcer.

DR. FREDERICK C. SHATTUCK, Boston, said the disease is readily recognized. Not enough emphasis is placed on "Pyloric Spasm." In mild cases an alkali soda or magnesia is curative. Diet should consist largely of milk and eggs, without salt or condiments, and with only limited amounts of meat or fish. The severer cases call for the same diet and large doses of bismuth. Ulcer is treated by resting the stomach, morphia, and rectal feeding. Gradually begin to give small quantities of milk and lime water until meat can be given safely. The only indications for operation are perforation or a cicatrix producing obstruction.

DISCUSSION.

DR. ELBRIDGE G. CUTLER, Boston, believes that rest in ulcer of the stomach should be absolute for three or four weeks. In the fourth week the patient may be allowed to walk a little. For a long time he must not bend forward or bring any pressure on the epigastrium. For one week give milk and lime water. Second week, curd or strained cereal. Third week, eggs. Fourth week, chicken and simple diet. No raw fruit, pastry or beef for several months. For the first two days use rectal feeding, omitting it when you can give 6 oz. of milk and lime water at a time. Adrenalin helps in checking hemorrhage. Profuse or frequent hemorrhage or persistent pain calls for operation. Of his 65 cases all but 19 were of foreign parentage; 5 died; 1 recurred; 27 are well; 4 improved; 2 much improved, and 2 not improved.

DR. MARSENA P. SMITHWICK, Boston, agreed with Dr. Chase that HCh is practically useless. Hyperchlorhydria is a neurosis, and successful treatment classes it with neurasthenia. He treats it as such.

JOINT MEETING OF SURGICAL AND MEDICAL SECTIONS.

Methods of Medicine.

DR. LEWELLYS F. BARKER, of Johns Hopkins University, delivered an address on this subject. He said medicine is most complex. It was an art before it became a science, and is now only gradually becoming rational. Men have been busy collecting and classifying facts and as yet few laws have been formulated. In the gathering of facts reason has brought vast aids to the mere senses. Vision, hearing, touch are each far more accurate than formerly because of these aids. Exactness is everywhere demanded. Hypotheses must be tested by experiments. Experience is more valuable than comparison in determining causes. Scientific medicine contains within itself its own criterion. Only thus is the truth of any man's statement to be established. Truths we can now see were formerly invisible. The scientific medical man desires to act. Therapy then becomes aggressive. Better knowing results in better doing. Scientific therapy must be based on rational physiology. Do not separate the clinics from the laboratories. Medical schools are now training scientific practitioners.

SECTION IN SURGERY.

DR. GEORGE H. MONKS, Boston, Chairman.

Applied Anatomy of the Frontal Sinuses.

DR. HARRIS P. MOSHER, Boston, presented a paper on the descriptive and surgical anatomy of the frontal sinuses, illustrating his points by a large number of charts and drawings.

What the Suburban Surgeon is Doing in the Abdomen and How He Does It.

DR. CHARLES E. DURANT, Haverhill, cited his own experience of 250 surgical operations. His cases included appendicitis, pelvic disease, extrauterine pregnancy, hernia, etc. A mortality of only 11 in a list of 281 operations shows that good work is not done only in large city hospitals. After describing the deails of his technic and management, he argued the necessity and the possibility of keeping in touch with the large city clinics.

The Cause of Disability After Fracture of the Lower Leg.

DR. FREDERICK J. COTTON, Boston, presented a preliminary report. He said the cause is not chiefly the deformity which may exist, but the relation which is established between the axes of the bones. Shortening is rarely over one-half inch. But there may be poor circulation, swelling and, hence, unfavorable results. The commonest defects are valgus, static

flat-foot, inverted potts and shortened tendo-Achilles. There is a tendency to too great immobilization. Judicious massage is better. The foot must be kept at right angles with the ankle.

Other papers read were: "Early Diagnosis of Surgical Diseases of the Urinary Tract," by Dr. Benjamin Tenney, Boston; "Symptoms and Treatment of Disease of the Frontal Sinus," by Dr. F. C. Cobb, Boston.

Some Problems of Intermediary Metabolism.

PROFESSOR RUSSELL H. CHITTENDEN, of Yale University, gave the Shattuck lecture. He said: Metabolic processes do not yet constitute a complete chain. There are many gaps. As these are slowly filled in new gaps appear. Many diseases are clearly the results of perversions in metabolism. Chemical processes are all the time going on in the cells and glands. The same cells may produce a variety of products. How are these changes brought about? Formerly much emphasis was placed on the theories of "Vitalism." Now we know that cells manufacture and contain intracellular ferments. New ones are being constantly discovered. They are present within the cells of nearly all tissues and act best on the proteids of that tissue. Oxidation is due to these intracellular ferments known as "oxidazes." An illustration is found in the series of intermediary metabolic changes which occur in the change from nucleoproteids to uric acid. Moreover, these ferments may exhibit oxidation—probably a more important result even than the oxidation itself. Uric acid does not come chiefly from the food ingested, but from the muscle tissue, and owes its origin entirely to enzymatic oxidation. The same series of changes due to intracellular ferment, was demonstrated in the oxidation of carbohydrates. Here again "oxidazes" which inhibit allow or compel incomplete oxidation products. The final result depends on the successive action of the proper intracellular ferments.

Wednesday morning a number of Boston specialists demonstrated the latest methods of diagnosis. The demonstration was organized by Prof. W. T. Councilman of Harvard. The following topics were discussed: Frozen sections, boards of health, bacteriology, medicolegal tests, feces, blood, sputum, coagulation time, urine, cytodiagnosis, pathology, dermatology, otology, cystoscopy, blood pressure, neurology, digestion, *x*-ray, laryngology, physical diagnosis, and surgery.

The annual discourse was given by Dr. Charles A. Drew, State Farm, and was followed by the annual dinner.

Lieutenant-Governor Guild said Massachusetts is not merely abreast of other states in matters of medicine and sanitation, but in many points is the pioneer. No other state takes as good care of its insane, or feeble-minded, or furnishes free antitoxin for diphtheria. In matters of water supply and sewerage, Massachusetts is an international authority.

LOUIS D. BRANDIS, ESQ., appealed to the physicians of Boston to take some concerted action and secure the expenditure for a Hospital for Consumptives of the $150,000 which was appropriated in 1901, but no part of which has yet been called for by the mayor.

WISCONSIN STATE MEDICAL SOCIETY.

General Session, Fifty-ninth Annual Meeting, June 8, 1905.

The President, DR. C. W. OVIATT, in the Chair.

(*Concluded from page 2004, vol. xlv.*)

Squint.

DR. H. V. WÜRDEMANN and DR. N. M. BLACK, Milwaukee, said that it is a well-established fact that the large majority of crosseyed children can be cured of their squint without resorting to operative procedures, provided treatment is begun early enough.

DISCUSSION.

DR. J. A. L. BRADFIELD, La Crosse, said that it is criminal to tell a parent that a child will outgrow squint. This disease is caused in most cases by errors of refraction, which, if corrected, will in time correct the squint.

DR. G. E. SEAMAN, Milwaukee, said that the real objection to the Worth method of developing the fusion faculty is the time and patience necessary to bring about good results. Amblyopia is the effect rather than the cause of squint, but in amblyopic cases operation is frequently necessary. Squint is almost never outgrown without treatment.

DR. F. T. NYE, Beloit, advised the earliest possible treatment. Kindergarten work does not cause, but discovers defective vision early and in time for correction. If the cases are not treated early, operation may become necessary.

DR. WÜRDEMANN said the results of orthoptic treatment are encouraging. Half a dozen treatments are given at the office of the physician and the rest of the treatment is given at the home of the patient. It may require from three months to one or two years to effect a cure.

Placenta Prævia.

DR. G. A. HIPKE, Milwaukee, said that Cesarean section should always be performed where the child is alive in a case of placenta prævia centralis, but that it should never be performed in cases of placenta prævia lateralis or marginalis.

DISCUSSION.

DR. T. L. HARRINGTON, Milwaukee, stated that placenta prævia is not on the increase. The diagnosis is usually easy. Modern practice has reduced the death rate of mothers from 30 per cent. to 10 per cent., and the death rate of the children considerably. Cesarean section should seldom be resorted to even in placenta prævia centralis.

DR. L. T. BENNETT, Beloit, protested against the rule of performing Cesarean section in placenta prævia centralis. Great pains should be taken in these cases to avoid infection.

DR. WARREN B. HILL, Milwaukee, said the location of the patient is an important factor in the treatment. The expectant plan might be pursued in a good hospital, while under adverse surrounding and where the conditions are not favorable to immediate relief, premature labor should be brought about as quickly as possible.

DR. J. R. MINAHAN, Green Bay, urged that the surgeon be called early, if at all, and not as a last resort.

Aseptic Obstetrics.

DR. J. P. COX, Spooner, urged absolute surgical cleanliness. Nature tries to protect the patient, and it is only when in our own bungling insanitary ministrations we overwhelm the guardian of the citadel with hostile germs that danger results.

DR. E. L. BOOTHBY, Hammond, said it is often too late to practice aseptic obstetrics in the country, but women under the conditions described seem to be immune from infection.

DR. J. M. DODD, Ashland, said that absolute asepsis in obstetrics is impossible.

Address in Surgery.

DR. HUGH H. YOUNG, Baltimore, Md., discussed the present status of surgery of the prostate. He gave an outline of the functions and pathology of the gland, and described his own modified perineal operation, whereby he leaves the floor of the urethra, the verumontanum and the ejaculatory ducts, thus preserving full sexual power in almost every instance. The prostate is one of the most important of the sexual organs. No progress has been made in the treatment of tuberculosis of the prostate during the last ten years, and operation is indicated. The etiology of prostatic hypertrophy is not definitely settled. Paralysis of the bladder is not a usual complication. Cystoscopic examination should be employed. Carcinoma of the prostate occurs in from 10 to 15 per cent. of supposed benign hypertrophies. It is one of the most important of curable surgical conditions. Enlarged, hard and irregular prostate with tendency to grow toward the seminal vesicles indicates cancer. An early diagnosis and permanent cure are feasible.

The Causes and Symptoms of Cardiac Insufficiency.

DR. J. D. MADISON, Milwaukee, said early symptoms should be studied and treated, but the diagnosis of myocardial disease is often difficult.

DR. W. H. WASHBURN said the earliest evidences of myo-

cardial insufficiency should be recognized and treated. The new Oertel stethoscope was exhibited.

DR. A. J. PATEK, Milwaukee, said that myocardial conditions, if recognized early, are quite amenable to treatment. Arrhythmia is not a perfectly reliable test of myocardial degeneration, but may be due to gastrointestinal or other disturbance.

Infantile Scurvy, with Special Reference to Diagnosis.

DR. A. W. GRAY, Milwaukee, gave the history and pathology of the condition and urged the importance of the disease, its proper early diagnosis and treatment. The disease is caused by improper feeding. Many children die on account of non-recognition of the disease.

Arteriosclerosis.

DR. A. L. POTTER, West Superior, said various instruments for measuring blood pressure are useful for the early detection of arteriosclerosis. Trunecek's inorganic serum is valuable in the treatment. The old saying that a man is as old as his arteries is a true one.

The Pathology and Non-Surgical Treatment of Injuries of the Stomach.

DR. WILHELM BECKER, Milwaukee, described methods to be used in rectal feeding, oil inunctions. He advised packing about stomach to prevent infection of abdominal cavity with pancreatic juice and to keep the various organs clean.

DR. WARREN B. HILL spoke of the advantages of rectal feeding in such cases, but the feeding should be done by the physician in charge. Give the bowel ample time to rest between feedings.

Diagnostic Value of Cystoscopic Examinations.

DR. W. A. GORDON, JR., Oshkosh, said cystoscopy is a conservative diagnostic procedure that renders unnecessary many exploratory operations. It is useful chiefly in the diagnosis of urinary tumors. It affords the best means of collecting urine from each kidney separately. It is valuable in prostatic disease, calculus, appendicitis and bladder troubles generally. The instrument should be employed more freely than at present in the settlement of difficult diagnoses in urinary diseases.

Blood Examination as an Aid to Diagnosis.

DR. M. DVORAK, La Crosse, showed methods used, emphasized the importance of the subject, and showed the great progress made.

DR. OTHO FIEDLER, Milwaukee, said that work on the blood has heretofore been largely cellular, but now the plasma is receiving greater consideration. The test-tube pathology of the present is to be differentiated from the microscopic pathology of the past.

The secretary spoke very hopefully of the success of the society under the new plan, and said he believed that a membership of 2,000 would soon be attained and the dues could be decreased. One of the things hoped for was that membership in the county society would include membership in the state and national bodies.

KANSAS MEDICAL SOCIETY.

Annual Meeting, held in Wichita, May 3-5, 1905.

The President, DR. LAWRENCE REYNOLDS, Horton, in the Chair.

House of Delegates.

The house of delegates considered the matter of redistricting the state into councils or districts and received reports on organization. During the year 49 county societies have been organized as component parts of the state society, and the membership has been increased more than 100 per cent.

The president, Dr. Lawrence Reynolds, Horton, chose as the theme for the presidential address, "The Doctor as a Business Man."

The program of the meeting was divided into symposia on nervous and mental diseases, eye diseases, general surgery, orthopedic surgery, state medicine and therapeutics.

Election of Officers.

The following officers were elected: President, Dr. C. E. Bowers, Wichita; vice-presidents, Drs. Harry R. Ross, Sterling; John D. Riddell Enterprise, and Samuel S. Glasscock, Kansas City; secretary, Dr. Charles S. Huffman, Columbus (for three years); treasurer, Dr. Lewis H. Munn, Topeka; librarian, Dr. Samuel G. Stewart, Topeka; councilors, Drs. Clarence C. Goddard, Leavenworth; Millard F. Jarrett, Fort Scott; Frank M. Daily, Beloit; Oliver J. Furst, Peabody; Herbert L. Alkire, Topeka, and Arthur L. Cludas, Minneapolis; delegate to the American Medical Association, Dr. Lawrence Reynolds, Horton.

The society will hold its next meeting at Topeka.

Therapeutics

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns.]

Pertussis.

At the onset of the disease, according to the *Amer. Text-Book of Applied Ther.*, a hot mustard footbath should be given, followed by a saline aperient and the following for internal use:

℞.	Tinct. aconiti	m. ii	12
	Vini ipecac	m. xlviii 3	20
	Syr. aurantii flor	ʒss 15	
	Liq. potass. cit. q. s. ad	ʒii 60	

M. Sig.: One teaspoonful every two hours for a child 2 years of age.

During the paroxysmal stage the indications for treatment are to relieve or to cut short the paroxysm and to subdue the irritability of the respiratory mucous membrane and of the general nervous system, and to get rid of the increased secretion in the bronchi. During the paroxysm the child should be made to sit down or to kneel, and the head should be held in the mother's hands. In very young children the mucus should be removed by the finger after the paroxysm has passed. A few swallows of water may serve the purpose.

Of all the antispasmodic preparations Starr ranks belladonna first. Under its use the frequency and severity of the paroxysm are allayed. The following formula is also recommended:

℞.	Pulv. ipecac.		
	Ext. opii aq., āā	gr. iv	25
	Ext. valerianæ	ʒss 2	

M. Ft. chart No. xvi. Sig.: From one to four during the day.

Jacobi, in the case of a child 6 years of age, begins with ten drops (.65) of the tincture of belladonna three times a day, and gradually increases the size of the dose till flushing begins. Other authorities begin with grain one-fourth (.015) of the extract of belladonna for a child 2 years of age, combined as follows:

℞.	Ext. belladonnæ	gr. iv	25
	Syr. tolutani q. s. ad	ʒii 60	

M. Sig.: One teaspoonful every two hours until the physiologic limit is reached.

The following is also recommended at the beginning of the whooping stage:

℞.	Zinci sulph	gr. i	06
	Ext. belladonnæ	gr. 1/6	01
	Syr. aurantii	ʒii 8	
	Aquæ	ʒiv 15	

M. Sig.: At one dose and repeat every four hours.

The dose of zinc sulphate and belladonna may be gradually increased.

To children under 1 year of age from one-half to one grain (.03-.06) of alum is given three or four times a day, and to older childen grains two (12) from every four to six hours. For a child 1 year old the following formula is recommended:

℞. Ext. belladonnæ.....gr. i | 06
Aluminis 3ss 2
Syr. zingiberis
Syr. acaciæ
Aquæ, āā.....℥i 30

M. Sig.: One teaspoonful four times in twenty-four hours.

Antipyrin is of value when given in proper sized doses. Sonnenberger recommends grain 1/6 (.01) for each month of the child's age or grains one and a half (.09) for each year, and advises repeating the dose every four hours. This dose may be gradually increased. The dose for larger children may reach from grains eight (.50) to grains fifteen (1.00) three times daily. It should be commenced early in the course of the disease.

Emetics are sometimes recommended. For this purpose the syrup of ipecac is of value given in doses of from ten to twenty drops each (.65-.1.30) three times a day to a child 3 years of age.

Inhalations are recommended by some authors, such as an inhalation of steam containing from 1 to 2 per cent. solution of carbolic acid. Oil of eucalyptus is said to be a more powerful germicide than carbolic acid applied in the same manner. The following combination is recommended for this purpose:

℞. Olei eucalypti
Olei terebinthinæ, āā.....3ii 8
Spts. rectific .....℥ii 60

M. Sig.: As an inhalation one-half hour before each meal and at bedtime.

Bronchitis.

The following combinations containing senega are of value in the treatment of bronchitis which is chronic in character:

℞. Tinct. senegæ 3ii 8
Liq. ammon. acetat.....3iv 15
Spts. ammon. arom.....3ss 2
Syr. simplicis .....℥i 30
Aq. feniculi q. s. ad.....℥iv 120

M. Sig.: Three teaspoonsful three or four times a day. Or:

℞. Vini ipecac. 3iss 6
Syr. pruni virg.....3iv 15
Ammon. carb.....gr. xx 1 | 30
Infus. senegæ q. s. ad.....℥iv 120

M. Sig.: Three teaspoonfuls four times a day in water. Or:

℞. Tinct. scillæ 3i 4
Tinct. belladonnæ 3ss 2
Tinct. senegæ 3iii 12
Elix. simplicis q. s. ad.....℥vi 180

M. Sig.: One tablespoonful four times a day.

In the acute bronchitis of children the following combination is recommended:

℞. Vini ipecac.....m. x | 65
Liq. ammon. acetat.....3ss 2
Tinct. belladonnæ.....m. i | 06
Spts. chloroformi.....m. v | 30
Aq. feniculi q. s. ad.....℥ii 60

M. Sig.: Two teaspoonfuls every hour for four or five doses; then once every three or four hours.

False and Membranous Croup.

In the ordinary cases of false croup, unless the symptoms are severe, S. A. Visauski, in *Merck's Archives*, recommends the following outline of treatment:

℞. Hydrarg. chloridi mitis
Sodii bicarb., āā.....gr. ss | 03
Salol .....gr. 1/4 | 015

M. Ft. chart. No. i. Sig.: One such powder every hour until four doses are taken.

For the croupy cough and for its relaxing effect the following is advised:

℞. Apomorph. hydrochlor.....gr. i | 06
Acidi hydrochlor. dil.....m. xxx 2
Syr. senegæ 3iv 15
Syr. pruni virg.....℥iss 45
Aq. anisi q. s. ad.....℥iv 120

M. Sig.: One teaspoonful every two hours for a child 3 years of age. Or:

℞. Potass. carb.....gr. xxiv 1 | 65
Vini ipecacuanhæ 3iii 12
Spts. chloroformi 3ii 8
Syr. pruni virg.....℥i 30
Aq. anisi q. s. ad.....℥iii 90

M. Sig.: One teaspoonful every two hours.

A cloth wrung out in cold water, with a dry cloth on top, should be applied to the throat and changed every hour. The use of medicated steam is also recommended. The child is placed under a tent and the steam, charged with turpentine and eucalyptus oil or menthol and camphor, passed from a Holt's kettle. If it is a case of false croup one steaming is usually all that is necessary, but in membranous croup it must be repeated from time to time, according to circumstances. If, by the foregoing treatment, the symptoms do not clear up in twenty-four hours, antitoxin should be administered, giving to a child 2 years of age from 3,000 to 4,000 units, and repeating the dose in eight hours if necessary. If the croupy condition has existed three or four days before the physician sees the child and the type of the disease is malignant in character, 5,000 units should be used as the first dose. The severity of the disease should govern the treatment by antitoxin and not the age of the patient. The general nutrition of the child should be maintained together with proper elimination, and attention should be given the heart. If the disease still progresses, intubation or tracheotomy must be considered.

Some authorities recommend the following as of value in the treatment of false croup in adults:

℞. Vini ipecac. 3iss 6
Antimon. tartratis.....gr. 2/3 | 04
Oxymel. scillæ 3i 4
Infus. senegæ q. s. ad.....℥ii 60

M. Sig.: From ten to fifteen minims every fifteen or twenty minutes until the cough is relieved.

Medicolegal

Length of Time Entitled to Hospital Benefits.—The Court of Civil Appeals of Texas says, in the case of Scanlon vs. Galveston, Harrisburg & San Antonio Railway Co., that the testimony of the plaintiff was sufficient to show that a monthly deduction of wages was made by the company with the understanding that the employe, when sick or injured, should be entitled to hospital benefits at the company's expense, and this would imply and mean, in the absence of an understanding to the contrary, the continuance of the benefits while the sickness or injury required same. Moreover, the company could not, by secret rules, or rules not communicated to its employes, change its relation to them.

X-Ray Burns Evidence of Malpractice.—The Supreme Court of Iowa says that the malpractice case of Shockley vs. Tucker was submitted to the jury solely on the question whether the defendant had been negligent in his method of using the *x*-rays in the treatment of the plaintiff, and that it thinks this was a question of science and skill, wholly independent of the methods of treatment of any particular school. That the plaintiff was severely burned in his abdomen by the use of the *x*-rays, and suffered great pain and extended, if not permanent, disability therefrom, was clearly shown; and the court hardly thinks it would be contended that such burning was proper treatment for any disease, or in accordance with the theories of any school. The witnesses were shown to be competent to testify as to the nature of the burns which are caused by an improper use of the *x*-rays; and, whatever error might have been committed in allowing them to testify as to whether the *x*-ray treatment was proper for appendicitis, it was without prejudice. The court thinks that the fact that the plaintiff was severely burned was some evidence in itself that the treatment was improper. But it was not proper, in making out a case for the plaintiff, to show incompetence and negligence in other cases by proving the results of the defendant's treatment in such cases.

Communications to Physician to Further Criminal Purpose.—The Minnesota statute provides that: "A regular physician or surgeon can not without the consent of his patient be examined in a civil action as to any information acquired in attending the patient which was necessary to enable him to prescribe or act for the patient." In the case of McKenzie vs. Banks the defendant called as a witness a physician, who tes-

tified that the plaintiff called on him; that he did not prescribe for her or treat her, and that he received no information from her which was necessary to enable him to prescribe or to act for her. The defendant then offered to prove by the witness that the plaintiff told him that she was with child and asked him to produce a miscarriage on her, not, however, on account of her health, but because she had too many children and did not want any more; and, further, that the request was refused by the witness. The evidence was objected to by the plaintiff, among other reasons, on the ground that it was an attempt to prove a privileged communication. But the Supreme Court of Minnesota holds that the evidence was not privileged. It says that it is clear that the communication to the physician sought to be proved by him was not acquired by him in attending the plaintiff, nor was it necessary to enable him to prescribe or act for her within the meaning of this statute. If the plaintiff made the statement assumed in the offer it was nothing more than an open request to the physician to join in a conspiracy to commit a vile crime, and it fell within the rule that professional communications are not privileged if made in furtherance of a criminal purpose.

Physical Examination for Impotency.—The Third Appellate Division of the Supreme Court of New York does not think that, in Gore vs. Gore, an action brought by a wife to annul her marriage to the defendant on account of his alleged physical incapacity and impotency, the objection was well taken that the court had no authority to grant an order requiring a physical examination of the defendant. It says that the old court of chancery never refused, that it can discover, to exercise such authority. On the contrary, it would never grant a decree annulling a marriage on that ground until such an examination had been had by competent and disinterested surgeons named or approved by the court, and such an examination would be directed, and the defendant ordered to submit thereto, on the court's own motion, in the event that neither party applied, on the ground that public policy required such proof of such a charge in order to warrant a dissolution of the marriage contract on that ground. Any less efficient proof was clearly so liable to collusion that it was deemed insufficient and unsatisfactory. But the court does not think that the order should direct the deposition of the physicians to be taken out of court and before trial. It says that it is of the opinion that no part of such an examination should in any instance, unless some peculiar and unusual features require it, be had at any other time than during the progress of the trial, or the taking of the evidence on default, in order that whenever practicable the whole proceeding may be under the immediate direction of the court. The proceeding at its best is a harsh and offensive one, and it will naturally be less trying to the defendant if it is conducted before the court itself. Also the testimony of the physicians as to the result of their personal examination will be more satisfactory to the court itself if taken before the court than if taken on a reference and produced second-hand.

Rank and Right of Physicians' Claims Against Estates.—Section 3347 of the Iowa Code provides that, subject to the expenses of administration, the charges resulting from the last sickness and funeral of the deceased, and allowance made for the maintenance of the widow and minor children, shall be first paid. All "other demands against the estate" are then separated, by section 3348, into five classes: 1, Preferred claims of the United States; 2, public rates and taxes; 3, claims filed within the first six months of administration; 4, all other debts, and 5, legacies and distributive shares—which classes are entitled to priority in the order named. Section 3349 provides that, "All claims of the fourth of the above classes not filed and allowed or if filed and notice thereof as hereinbefore provided is not served within twelve months from the giving of the notice aforesaid, will be barred." An administrator took the ground that, conceding that the claim of certain physicians came within the preferred class, by failure to file such claim within the first six months, it was relegated to the fourth class mentioned in section 3348; and, failing to file it within the year provided for claims of that class, it was barred, under the terms of section 3349. But the Supreme Court of Iowa holds otherwise. It says, in the case of Wolfe vs. Knapp, that, under the provisions above cited, creditors of the preferred class, to which the physicians belonged, are entitled to be first paid in full, even though it exhausts the entire estate. For the purposes of argument it may be conceded, as the administrator contended, that the preferred claims should be filed for allowance in the manner required for the allowance of other claims against the estate. It may also be conceded that failure to file and prove such claim within six months or twelve months may sometimes operate to defeat the preference to which it would otherwise be entitled, but not because such preferred claim is barred under section 3349. For instance, if the estate be insufficient to pay all creditors in full, and the physician or other preferred creditor neglects to file his claim until more than a year of administration has passed, and distribution is made or ordered on the basis of the claims appearing on file, he may well be held estopped by his own laches for coming in at such a late day and insisting on his priority. But where the estate is entirely solvent, and the rights of no other creditor are in any manner prejudiced by the delay, it will not lie in the mouth of the administrator to object to payment because the demand was not presented more promptly. The above classification is primarily for the benefit and protection of creditors, and not merely of the administrator; and, if the former be not prejudiced by the belated payment of the preferred claim, the latter should not be permitted to escape an honest debt, for the satisfaction of which it is admitted he has ample funds of the estate in his hand.

Current Medical Literature

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

American Medicine, Philadelphia.

June 17.

1. Relations of Public Health Science to Other Sciences. W. T. Sedgwick, Boston.
2 *Knee Injuries and How to Manage Them. De Forest Willard, Philadelphia.
3 Tropical Anemia. M. J. Rosenau, Washington, D. C.
4 *Present Status of Roentgen-Ray Therapy in Dermatology. J. H. Comroe, Philadelphia.
5 *Encephalitis and Other Nervous Affections Complicating Scarlatina. J. H. W. Rhein, Philadelphia.

2. **Knee Injuries.**—Willard discusses sprains, with or without laceration of ligaments; contusions, displacement of semilunar cartilages; loose bodies; sensitive joints, often called hysteric; blood clots in the joint, and synovitic effusions. He summarizes his papers as follows:

1. Apparently slight injuries of the knee often prove more lasting and annoying than those of a more positive nature, as fracture or dislocation.
2. Every injury of the knee should receive careful examination, since laceration of ligaments or of periarticular tissues, or displacement of semilunar cartilages, or of loose bodies, may have occurred. Obscure fractures, also, are not uncommon.
3. Every injured knee required rest during its acute inflammatory stage; rest in bed, fixed dressings, and crutches are needful. Heat and cold are two powerful agents in aborting a threatened inflammaton.
4. Adhesive plaster strapping is of great value in securing partial restraint of a knee and in producing absorption of effusion. Restricting apparatus should be used with discrimination.
5. Blood clots in the joints should be removed by incision and flushing.
6. Effusions, if large, should be removed by aspiration, or incision followed by weak iodin injection.
7. Displaced semilunar cartilages should be stitched in position, or removed. Loose cartilaginous bodies should be removed.
8. Motion is the normal condition of joints, consequently massage and voluntary motions should be instituted as soon as the inflammatory stage has passed. Neglect of this precaution may result in a neuromimetic patient and a chronic cripple.
9. Sensitive neurotic knees should not be mistaken for diseased ones.
10. Complete primary rest during the inflammatory stage, followed by massage, voluntary and involuntary movements, gymnastic exercises, hot-air treatment, hot and cold douchings, etc., are the best means at our command for preventing ankylosis.
11. Should ankylosis follow, forcible straightenings, tenotomies, osteotomies, etc., may be required.

4. **Roentgen Ray In Dermatology.**—Comroe's conclusions as to the value of the Roentgen ray in the treatment of diseases of the skin are as follows:

1. Radiotherapy must not be considered a panacea. Although it has a large field of usefulness, it also has its limitations and dangers.
2. Most consistently good results are obtained in epithelioma, rodent ulcer and acne.

3. Great benefit may be looked for in eczema, chiefly the vesicular variety affecting the hands, sycosis, tinea tonsurans, verruca, lichen planus, nevuses and port wine marks, localized pruritus, favus, etc.
4. Deepseated epitheliomas, with exposure of bone, cartilage, etc., appear to do well for a while, but usually get worse eventually. The judicious combination of radiotherapy and operation is highly recommended in these cases.
5. The Roentgen rays are beneficial when pain is particularly to be avoided, as in old, feeble people.
6. Radiotherapy produces the best cosmetic results.
7. Recurrences after radiotherapy are less frequent than after other methods, and are more amenable to re-application of the rays.
8. The high vacuum tube is preferable in epithelioma, rodent ulcer, and lupus, the medium or soft tube being employed in other cases.
9. Radiotherapeutic treatment should be instituted as soon as possible, the result being usually in direct proportion to this factor.
10. Epithelioma of the skin usually reacts better than that involving the mucous membranes.
11. Tampering with caustics and other irrational forms of treatment are to be condemned as measures preceding radiotherapy, since they undoubtedly unfavorably alter the prognosis in such cases.
12. No rule can be laid down for the prevention of burns, etc.; hence the dosage must be carefully regulated in each individual case.
13. No protective ointments, powders, etc., must remain on the part treated, since they may prohibit or lessen the effect of the rays by interfering with their passage.

5. **Nervous Affections Complicating Scarlatina.**—In the case reported by Rhein, while, clinically, symptoms of meningitis or irritation of the brain were practically absent, pathologically, there was evidence of beginning pachymeningitis and encephalitis. The most common complications of scarlatina on the part of the nervous system, says Rhein, are hemoplegia and peripheral neuritis. More rarely this disease may be followed by paraplegia, optic neuritis, amaurosis, tetany, pseudoataxia, neuralgia, epilepsy, disseminated sclerosis, Friedreich's ataxia, hysteria, chorea, hydrocephalus, meningitis and disordered mental states. With the exception of hemiplegia and imbecility, the prognosis is good, if we exclude those rare organic cases such as Friedreich's ataxia, disseminated schlerosis, and epilepsy, which are recorded as following scarlatina. Some of those conditions, like Friedreich's ataxia, are probably merely hastened in their manifestations by the scarlatinal process. The pathologic findings consist of thrombosis, embolism, small cerebral hemorrhage, rarely abscess of the brain, congestion of the brain, meningitis, and finally meningitis and encephalitis.

Medical Record, New York.

June 17.

6 *Carbon Factor in Gout: "Hyperemia." F. Hare, London.
7 Removal of the Lens in Myopia. J. L. Barnes, New York.
8 *Rectal Injections of Large Doses of Sodium Salicylate in Cerebrospinal Meningitis. A. Seibert, New York.
9 Medical Phases of Immigration Legislation. V. G. Heiser, Manila.
10 *Masturbation in Childhood. A. A. Strasser, Arlington, N. J.
11 Saw Palmetto in Tonsillitis. I. L. Van Zandt, Ft. Worth, Texas.

6. **Carbon Factor in Gout.**—Hare's theory of the nature of gout, is the retention in the body of carbonaceous material. Normally there must be a systematic equilibrium between the carbonization of the blood from the body's carbon intake and its decarbonization, but Hare believes that at times this balance may be disturbed and carbonaceous material accumulate in the blood to an ultra-physiologic or pathologic degree. To this hypothetical state he applies the term hyperpyremia, and to the normal state, the term pyremia. The means by which hyperpyremia may be dispersed are numerous, and include bilious attacks, migraine, gastralgia with anorexia, asthma, major epilepsy, and acute articular gout. Some of these operate through increased expenditure, others through restricting the intake, and their action is called by the author, carbonization. The mechanism of acute articular gout involves an interdependence between hyperpyremia and uricemia, through which the kidneys at times become more active in excreting uric acid, that is, the renal disability depending on hyperpyremia is terminated by a carbonization of the blood. Hare summarizes as follows his view of the steps in acute gout: (1) Hyperpyremia from excess of carbonaceous income or deficiency of carbonaceous expenditure. (2) Progressive accumulation of uric acid in the blood; uricemia. (3) Deposition of a portion of the uric acid in a joint. (4) Acute arthritis. (5) Pyrexia involving increased combustion. (6) Acarbonization of the blood. (7) Free renal elimination of uric acid retained in the blood. (8) Recovery by the blood of its solvent powder for uric acid. (9) Reabsorption of the extravascular articular deposits of uric acid. Thus the acute gouty paroxysm may be regarded as a "pathologic function"—as a conservative reinforcement of inadequate physiologic function; and uric acid may be regarded as an essential instrument therein.

8. **Sodium Salicylate in Cerebrospinal Meningitis.**—Seibert believes that the administration of large doses of sodium salicylate, given by rectum to avoid gastric disturbances, forms the most satisfactory plan of treatment of this disease. Five cases are described in which the use of large doses of the drug appeared to exert a powerful curative effect. According to the age of the patients, sodium salicylate was given by rectum in fifteen grain doses dissolved in a tablespoonful of water, at intervals of from one to eight hours, the salicylization being gradually reduced as improvement followed. In one case, that of a boy aged four and a half years, who had had the disease for seven weeks some months previously, and presented numerous sequelæ such as contractures, hemiplegia, strabismus, etc., very remarkable improvement followed the treatment, though it was begun at so late a date. In a tuberculous case, the salicylate did not appear to be effective. Effective sodium salicylate solutions must retain the color of distilled water. Yellow discoloration proves chemical changes, rendering the drug inefficient. When the rectal mucosa becomes irritated, a further dilution of the drug is indicated. Lateral compression of the sphincter ani assists in retaining the solution in the bowel. Small doses, given at shorter intervals, are ineffective.

10. **Masturbation in Childhood.**—Strasser analyzes the physical and other causes which may lead to the development of this vice, and also discusses the treatment. This consists mainly in prophylaxis and moral suasion, proper mental exercise, and hydrotherapy, rather than the sedative and tonic drugs usually advocated.

Boston Medical and Surgical Journal.

June 15.

12 *Experimental Study of the Accuracy of Modern Clinical Methods for the Diagnosis of Disorders of the Stomach. H. F. Hewes, Boston.
13 Individual Factors in Hygiene. R. C. Cabot, Boston, and P. K. Brown, San Francisco.
14 Effects of Tobacco on the Throat. S. W. Langmaid, Boston.
15 *Treatment of Status Epilepticus. A. Morton, Palmer, Mass.
16 Reflexes in Epilepsy. A. Morton.
17 Exhaustion Paralysis in Epilepsy. M. B. Hodskins.
18 *Hypochlorization Method of Treatment of Epilepsy. A. Morton.
19 Lumbar Puncture in Status Epilepticus. M. Hodskins and A. Morton.

12. **Diagnosis of Gastrectasis.**—Hewes for some time has been making an experimental study of the question of the diagnosis of the conditions of stasis in stomach cases to determine as far as possible just what means are at our disposal for the investigation of this point in clinical work, and how great accuracy in diagnosis of the conditions can be attained by the employment of this means to its full extent in routine in the clinic.

His experimental work consisted of the study of 180 cases of various stomach conditions, including the normal condition, and the numerous varieties of stomach disorder as they appear in the clinic, with special regard to the selection of such clinical findings as will aid in the differentiation of conditions of stasis from other conditions of the stomach. The method of investigation adopted was that commonly recognized as the most useful single method for determining the existence of gastrectasis in clinical work, the examination of the contents of the fasting stomach. A comparative study of the records of these 120 cases in regard to the characteristics of the fasting contents indicated that the pathognomonic characteristics of stasis contents were never present in the normal or in other stomach disorders, so that their presence in a case might be significant in differential diagnosis. These were: (1) The presence of an abnormal food residue; (2) the presence of sarcinæ; (3) the presence of lactic acid; (4) the presence of abnormal yeast fermentation. An investigation of the records of the two sets of cases included in the research, the 26 stasis cases and the 154 no-stasis cases, including the 20 normal and 134 abnormal, in regard to these

essential or special stasis characteristics, shows the following facts: The first factor, the abnormal food residue in the fasting contents, was present in 24 of the 26 stasis cases. In 2 cases, no food residue, other than the scattered particles which are found in normal contents could be determined. In the 134 no-stasis cases a distinct food residue, recognizable as such by the eye or microscope, was not present in any case. The three remaining characteristics are occasional factors. Thus sarcinæ were present in 7 out of 26 cases, lactic acid in 8, yeast fermentation in 18. No one finding is present in all cases of stasis, and one of the findings may be present where another fails. The condition of stasis can not, therefore, be ruled out in any given case except by a routine application of all tests. Hewes says that the method of research for the determination of the existence or nonexistence of stasis in a given case should be as follows: The stomach contents should first be examined for the presence of the most constant characteristic, the food residue. If this finding is positive, the diagnosis of general motor insufficiency or pyloric obstruction is made, and no further investigation of this special point is necessary. If this test is lacking or doubtful, each of the three additional tests, the sarcinæ test, the lactic acid test and the yeast fermentation test, should be tried in turn. If any one of these is positive the diagnosis of stasis is still positive, though in this case the stagnation may be local as well as general. If all four tests are negative the existence of stasis may be regarded as not proved.

The summary of the special record which forms this experimental test is as follows:

Among 180 cases included in Hewes' investigation, 39 patients came to the surgical operation or to postmortem examination. In these 39 cases, 21 had a clinical diagnosis of stasis and 18 a diagnosis of no-stasis. In the 21 cases of clinical stasis an anatomic finding of obstruction of the pylorus that is of an actual anatomic cause for insufficient drainage, was found in every case. The actual pathologic findings in these 21 stasis or obstruction cases were: Cancer at the pylorus, 11 cases; ulcer at the pylorus, 9 cases; adhesions about the pylorus, 1 case. In the 18 clinical no-stasis cases, the pylorus was found to be intact or patent in every case. The actual pathologic findings present in these cases were: Cancer of the stomach, 10 cases; ulcer of the stomach, 3 cases; chronic gastritis, 2 cases; no demonstrable lesion of the stomach, 3 cases.

That is, in the 39 cases in which it was possible to obtain an actual test of the accuracy or the significance of the clinical finding, the finding of stasis (twelve-hour stasis) was discovered to be an associate and sign of a pathologic lesion of the stomach of a serious character. No lesions of the pylorus were found in any of the test cases which did not show stasis. Three indications of importance in connection with the study of stomach conditions are: (1) The existence of obstruction of the pylorus in a given case can always be diagnosticated by a proper method of investigation; (2) the clinical sign of stasis (twelve-hour stasis) as a constant feature of a case is always a sign of a serious condition; (3) stasis is not, as a rule, an associate of even the serious stomach conditions as cancer or ulcer; unless the lesion is situated in the region of the pylorus.

15. Treatment of Status Epilepticus.—During the past twelve months Morton has used a sterile solution of sodium bromid hypodermically in many cases, and generally with good results. The best results were obtained with a solution of the sodium salt of the strength of 30 grains to the ounce. Stronger solutions than this are too irritant and are apt to produce abscesses. The solution, even in this strength, should never be injected in large quantities into the thighs and breasts. The site selected for the injection is the back just below the angle of the scapula. Here several ounces of the solution may be injected without fear of abscess formation. The amount of bromid injected varied in different cases; frequently from 60 to 100 grains will control the convulsions; but sometimes 180 grains or 6 ounces of the solution have to be injected before the desired result is obtained. The earlier the injections are commenced the better. If certain patients, who are apt to have series of convulsions or to develop status, have two convulsions in succession, they at once receive ten hypodermic injections, twenty minims each, of the sterile sodium bromid solution. If the patient continues to have convulsions, ten of the small hypodermic injections are given after each convulsion until the patient has received forty injections with the small syringe. If the patient continues to have convulsions after having received forty of the small injections from 1 to 4 ounces of the solution are injected into the tissues of the back. For these last injections, a large antitoxin syringe is used. Morton made use of lumbar puncture in cases of status epilepticus in seven cases with varying results. Three patients died. In none of the cases was it used during the first of the attack; but only after repeated injections of sodium bromid and other agents had failed to control the seizures. Four of the patients showed a marked improvement after the withdrawal of from 10 to 15 c.c. of cerebrospinal fluid, while in the others, there was little if any permanent effect obtained. In five of the cases the fluid was under increased pressure. In one of the cases 20 c.c. of the fluid were withdrawn after which 10 c.c. of sterile sodium bromid solution, 30 grains to the ounce, were injected into the subdural space. The patient, who had had twenty-five hard convulsions up to the time of the puncture, ceased having them and had only one more in the next fifteen hours. While the results have been varied, Morton feels that lumbar puncture may serve a useful purpose in the treatment of status epilepticus, especially in those cases in which there is increased intracranial pressure. The earlier the puncture is performed the better will be the results.

18. **Hypochlorization Method of Treatment of Epilepsy.**—The hypochlorization treatment has been in use at the Massachusetts Hospital for Epileptics for several years. Morton has had 24 patients who are either feeble-minded, idiotic or demented on this treatment for two and one-half years. The diet of these patients has consisted mostly of milk, eggs, bread and butter, gruel and soups, to which has been added enough sodium bromid so that each patient received about 15 grains a day. Sodium chlorid has not been entirely excluded from their diet. The results in this class of cases were very encouraging. The number of attacks decreased markedly, and the patients were much quieter than they were before the treatment was commenced. The hypochlorization method controls the convulsions, requiring only about one-half the amount of bromid usually given. It has little or no effect on the general nutrition of the patient, but is apt to cause constipation. It does not furnish enough salt to satisfy the patient's craving, but may be used with success with intelligent patients. A modified salt-poor diet, in which about equal parts of sodium chlorid and sodium bromid are used in the food may be used to advantage with iodiotic and demented patients if their diet can be controlled absolutely. Bromism is comparatively rare.

Medical News, New York.

June 17.

20 Value of Lumbar Puncture, with Particular Reference to the Diagnosis of Tuberculous Meningitis. E. P. Bernstein, New York.
21 Bacterial and Cellular Examination of the Spinal Fluid in Fifty Cases of Cerebrospinal Meningitis. T. W. Hastings, New York.
22 *Gall-Bladder Surgery, with Especial Reference to Early Diagnosis and Early Operative Interference in Cholecystectomies, with Brief Summary of Twenty-eight Cases, Including Six Cholecystectomies. F. Martin, Baltimore.
23 Adulteration and Substitution. G. C. Diekman, New York.
24 Colds and the Prevention of Colds. N. James, New York.
25 Carbohydrate Reactions of the Paratyphoid or Paracolon Group (Preliminary Communication). W. W. Ford, Baltimore.

22. Gall-Bladder Surgery.—Martin says that any case of gallstones is of such importance as to demand surgical aid, whether the patient has symptoms or not, for in these early recognized cases simple uncomplicated operations can be done and brilliant results achieved. The method of operation which provides free and thorough drainage of the gall ducts and gall bladder should be the method of choice. It is Martin's opinion that when one has to do with a badly infected or possibly gangrenous gall bladder, with necrosis of the adjacent liver structure and local peritonitis, the offending organ would better be extirpated. Martin gives a summary of 28 cases; 19 cases

of cholelithiasis, with cholecystitis in one form or another, the location of the stones being both in the common duct and in the gall bladder. In 5 cases the stones were found in both common duct and gall bladder, and in the rest of the cases they were confined to the gall bladder. There were 4 cases of malignant diseases of the biliary tract, in 2 of which the patient died following operation; the others were left unimproved. Of these 28 cases there have been 6 cholecystectomies, in all of which the patients made excellent recoveries; 3 were done for acute perforative cholecystitis, or empyema of the gall bladder, in which the gall bladder was gangrenous; 1 for chronic cholecystitis, with a large stone in the gall bladder; 1 for hydrops of the gall bladder which was large and distended, due to a large stone being impacted in the cystic duct, and 1 case for biliary fistula, with stones in the gall bladder and common duct. Four of the cholecystectomy cases turned out to be liver abscesses; the patients were sent to the hospital, however, as gall-bladder cases, and were put on this list. In all of these cases the abdomen was opened and freely drained and the patients made good recoveries. In 1 case there is gumma of the liver and perihepatitis. An exploratory laparotomy was done and no opening of the biliary tract was found necessary. The wound healed under one dressing and the patient is getting well under the use of iodid of potash.

New York Medical Journal.

June 11.

26 Modern Doctor. A. Jacobi, New York. (To be Concluded.)
27 Etiology and Diagnosis of Cholelithiasis. W. Ruoff, Philadelphia.
28 *Clinical Experience with Antitoxin and Advantage of Large Doses. L. Fischer, New York.
29 *Observations on the Diagnosis of Herpes Zoster. D. M. O. Robinson., New York.
30 *Local Versus General Anesthesia in Rectal Surgery. J. P. Tuttle, New York.
31 *Fibroid Tumors of the Uterus; Their Surgical Treatment. F. H. Martin, Chicago.
32 Shot at Christian Science from a Toy Pistol. A. C. McClanahan, Chicago.
33 Problem of the Tropics; the Interrelation of Certain Social and Business Questions. G. A. England, Plantation, Maine.

28. **Clinical Experience with Antitoxin.**—Fischer discusses the relative merits of large and small doses of antitoxin, and in this connection cites statistics taken from the clinical records of the Willard Parker Hospital. The antitoxin used at this hospital is known as the New York Board of Health serum. The strength is about such that 1 c.c. equals 400 to 500 units; 10 to 20 c.c. being the usual dose. For three months in 1903, out of a total of 361 cases, pharyngeal and intubated, there were 76 deaths, or about 21 per cent., under small doses of antitoxin. For four months in 1904 there were 469 cases, with 66 deaths, or about 14 per cent., under large doses of antitoxin. Fischer points out that the Willard Parker Hospital is a city hospital, and hence when septic cases, unsuccessful tube cases with diphtheria, or cases complicated by pneumonia are sent in, the mortality is increased considerably. If these patients, who are sent into the hospital frequently in a moribund condition, and those that die within twenty-four hours after admission, could be deducted, the statistics would prove the specific value of antitoxin more forcibly. In the Municipal Hospital of Philadelphia the mortality during the pre-antitoxin period was 29.58, while during the antitoxin period it was only 22.2. Statistics from other hospitals make the same showing. When large doses of antitoxin are used the mortality always is lower than when small doses are used.

29. **Treatment of Herpes Zoster.**—The plan recommended by Robinson is as follows:

Rest, attention to the general nutrition of the body, the ground for the microbes, the application of cold over the affected ganglia, a coal-tar preparation for the toxemia, and codein and bromid of potassium for pain not controlled by the antipyrin. Local treatment consists in aseptic and antiseptic measures. If the case is seen at a very early stage, the affected area can be disinfected in the usual manner by soap and alcohol and then painted with flexible collodion—and when convenient an antiseptic gauze applied. If seen later, when vesicles are changing in color, an ointment of boric acid and bismuth subnitrite, and avoidance of soap and water meet the indications. Later, ichthyol may be added to the ointment, or an antiparasitic preparation, as the ammoniated chlorid of mercury ointment with rose ointment to which bismuth may be added and also ichthyol. For the persistent neuralgias following zoster, anodynes and the faradic current or *x*-ray may be of some curative value, but on account of probable structural changes in the nerves and connective tissue of the ganglia, the condition is very rebellious to usual methods of treatment for neuralgia. Tonics, such as phosphid of zinc, and alteratives, such as arsenic, are also recommended.

30. **Anesthesia in Rectal Surgery.**—Tuttle says that simple fissures, small straight uncomplicated fistulas, ordinary skin tabs, isolated, prolapsing internal hemorrhoids in patients with stable nervous organisms may all be satisfactorily operated on with local anesthetics, of which cocain and eucain are the best. In all other conditions, including extensive hemorrhoids, complicated fissures and fistulas, and always in neurotic hyperesthetic individuals we should resort to general anesthesia.

31. **Surgical Treatment of Uterine Fibroids.**—The conclusions presented by Martin are based on an analysis of the last 200 consecutive cases of fibroids of the uterus in which he operated by hysterectomy or myomectomy up to Dec. 1, 1904, on the analysis of 1,188 cases reported by Dr. C. P. Noble, and on knowledge gained by the different forms of less radical operative procedures and on the non-operative methods employed by himself during a period of over eighteen years in caring for more than 400 cases not submitted to radical operation. Among the inherent conditions giving rise to dangerous symptoms in the 200 cases were the following: (1) Enormous development of growth rendering operative interference imperative, which occurred in 11 cases, or 5.5 per cent.; (2) dangerous uncontrollable hemorrhage in 41 of the cases, or 20.5 per cent.; (3) pregnancy complicating the tumor, making operation necessary in 6 cases, or 3 per cent.; (4) carcinoma of the cervix in 2 cases, or 1 per cent.

The following inherent conditions of importance were discovered when the tumors were removed:

(1) Serious broad ligament extension in 19 cases, or 9.5 per cent.; (2) serious adhesions to soft parts in 8 cases, or 4 per cent.; (3) cystic degeneration of tumor in 8 cases, or 4 per cent.; (4) myxomatous degeneration in 30 cases, or 14 per cent.; (5) calcareous infiltration of the tumor in 6 cases, or 3 per cent.; (6) deep suppuration of the tumor in 2 cases, or 1 per cent.; (7) carcinoma of the body of the uterus complicating the tumor in 3 cases, or 1.5 per cent.; (8) sarcoma complicating the tumor in 2 cases, or 1 per cent.; (9) senile endometritis giving rise to severe symptoms after the menopause occurred in 3 cases, or 1.5 per cent.; (10) suppurative endometritis was a complication in 5 cases, or 2.5 per cent.; (11) submucous projection of fibroid centers which produced serious symptoms occurred in 11 cases, or 5.5 per cent.; (12) necrosis of the center of the tumor occurred in 3 cases, or in 1.5 per cent.

Accessory conditions depending on or complicating the fibroids were the following:

(1) Pyosalpinx (double) in 20 cases, or 10 per cent.; (2) pyosalpinx (single) in 5 cases, or 2.5 per cent.; (3) hydrosalpinx in 6 cases, or 3 per cent.; (4) cystic ovaries (double) in 7 cases, or 3.5 per cent.; (5) malignant adenocystoma of the ovaries in 1 case, or 0.5 per cent.; (6) parovarian cysts in 5 cases, or 2.5 per cent.; (7) dermoid cysts of the ovary in 5 cases, or 2.5 per cent.; (8) large adenocystomas in 7 cases, or 3.5 per cent.; (9) hematoma in the left broad ligament in 4 cases, and in the right broad ligament in 3 cases, making a total of 7 cases, or 3.5 per cent.; (10) varicose veins in the broad ligaments in 5 cases, or 2.5 per cent.; serious extensive intestinal adhesions in 8 cases, or 4 per cent.; serious and chronic intestinal obstruction from tumor pressure in 7 cases, or 3.5 per cent.; (12) acute intestinal obstruction from pressure in 2 cases, or 1 per cent.; (13) serious pressure symptoms in 13 cases, or 7.5 per cent.; (14) appendicitis in 6 cases, or 3 per cent.; (15) extrauterine pregnancy in 2 cases, or 1 per cent.; (16) pregnancy complicating large subperitoneal fibroids, in which tumors were removed and pregnancies allowed to go to term, 3 cases, or 1.5 per cent.; (17) tuberculous peritonitis complicating the tumor in 3 cases, or 1.5 per cent.; (17) dilated ureters from obstruction caused by tumor pressure in 2 cases, or 1 per cent.; (19) hydronephrosis (large size) from tumor pressure, in 2 cases, or 1 per cent.

From all this material Martin draws the following conclusions:

1. The routine treatment for fibroids of the uterus, presenting symptoms, in women under 45 years of age, should be supravaginal hysterectomy, except as hereinafter stated. The exception to this rule should be (a) in subperitoneal tumors either pedunculated or not, in which only one or more distinct developments exist which do not materially increase the size of the uterus proper and the area of its endometrium, when myomectomies may be resorted to; (b) in fibroids which present excessive hemorrhagic tendencies, in which the hemoglobin is reduced below 25 per cent., or in which serious vascular cardiac or kidney complications exist which greatly increase the risk of the operation, when a preliminary operation of vaginal ligation of the uterine arteries should be resorted to; (c) in cases where a radical operation will not be accepted, a curettement and vaginal ligation of the uterine arteries may be resorted to, or, if no operation at all will be accepted, general tonics, ergotin in tonic doses, and galvanism scientifically applied may be depended on to relieve the patient materially, and occasionally tide them over the menopause to a complete symptomatic cure.

2. The treatment for large, complicated tumors, without regard to age, or large apparently uncomplicated tumors in which symptoms of hemorrhage or pressure exist, should be submitted to supravaginal hysterectomy.

3. Tumors of medium size apparently uncomplicated in women over 45 years of age may be managed by one of the less radical forms of treatment as: (a) when the tumors are of the symmetrical development type, enlarging uniformly the uterus, and the principal symptom is an exaggerated menstrual flow, the cases may

almost invariably be relieved by galvanism and tided over the menopause; or (b) if the growth is of the irregular type which has distorted more or less the uterine cavity, the case should be submitted to dilatation, finger exploration, curettement and, if considerable flowing is a symptom, vaginal ligation of the uterine arteries, with the idea of obtaining a symptomatic cure over the menopause.

(4) The extremely small class of tumors coming under the head of inoperable cases must be managed on general principles. Rest in bed, general tonics, treatment of the cardiovascular and kidney complications when they exist, curetting and irrigating for septic endometritis, electricity for pain and hemorrhage, ligation of the uterine blood supply if practicable for intractable hemorrhage and vaginal incision of impacted cysts or pus accumulation.

Lancet-Clinic, Cincinnati.

June 17.

34 Thyroidectomy in the Treatment of Exophthalmic Goiter. J. Ransohoff, Cincinnati.
35 Vital Values. C. H. Vaught, Richmond, Ky.
36 *Treatment of Diphtheria. M. A. Albl, Cleveland, Ohio.
37 Two Cases of Cesarean Section. J. F. Baldwin, Columbus, Ohio.

36. **Treatment of Diphtheria.**—Albl's paper is based on a personal experience in 106 cases, 37 of which occurred prior to the period of antitoxin, and 69 since. Of the first 37 cases, 25 were uncomplicated, the membrane extending over the tonsils and uvula only. In 4 the membrane extended into the nose and pharynx; and in 4 there was extension into the larynx as well; 4 were purely laryngeal. The mortality rate in this series of 37 was 30 per cent. Of the 11 fatal cases 7 were pharyngeal, 4 were laryngeal. Since the period of antitoxin he has treated 69 cases, 48 of which were pharyngeal and nasopharyngeal, 10 were purely laryngeal, and 8 were pharyngeal and laryngeal. In this group the mortality rate was reduced to 5.8 per cent. Of the 4 fatal cases 2 were of the buccal variety, 1 pharyngeal and 1 nasopharyngeal. Of the 36 patients treated by the antitoxin method 7 were between six months and one year old, 16 between one and three years, 28 between three and five, 15 between five and twelve. Of these 41 were females and 15 were males.

St. Louis Medical Review.

June 10.

38 Determination of Responsibility in and the Care of the Criminal Insane. H. J. Scherck, St. Louis.
39 Rupture of the Gall Bladder (Spontaneous and Traumatic, with and Without Operation); an Historical Review of 273 Cases. B. M. Ricketts, Cincinnati, Ohio.

Journal of the Association of Military Surgeons of the United States, Carlisle, Pa.

May.

40 Naval and Military Medical Officer. T. Roosevelt.
41 Medical Corps of the United States Navy. Some Details Respecting Its Past and Present. J. N. Hyde, Chicago.
42 Treatment of Upward Dislocation of the Acromial End of the Clavicle in the Tropics. P. R. Egan.
43 *Dangers of Unrestricted Traveling of Consumptives. J. W. Trask.
44 Medical Service of an Army in Modern War. W. D. McCaw.

43. **Dangers of Unrestricted Traveling of Consumptives.**—After having lived for two years at a sanitarium having approximately 200 consumptive patients, with whom he was continually in intimate contact, Thrask arrives at the conclusion that there is less danger of the infection in a well-regulated institution than there is in ordinary city life, and many times less than in traveling, where one is apt to use berths on trains, rooms in hotels, and dishes at meals that have been used previously by those suffering from pulmonary tuberculosis. He urges notification of the proper officials of the existence of cases of tuberculosis, as is at present the custom in the acute contagious diseases. Health officers should thoroughly instruct such patients as to the proper care of sputum, sterilization of all articles used in eating, sterilization of soiled handkerchiefs, the dangers from rugs, carpets, plush upholstered furniture, etc.; the disinfection of houses, if desired; proper building of railway coaches having in view simplicity of arrangement and furnishing, thus permitting of easy sterilization; disinfections of cars at the end of each trip, or two or three times a week; the use of sputum cups while on the train; special compartments for consumptives; disinfection of rooms in hotels occupied by consumptive guests; sterilization of all dishes and eating utensils, and, to make the campaign thorough, periodical disinfection of public bulidings.

Pennsylvania Medical Journal, Athens.

May.

45 *Prevention of Tuberculosis. H. S. Anders, Philadelphia.
46 Boils. G. W. Guthrie, Wilkesbarre.
47 Extract of Suprarenal Gland in Surgical Shock; a Report of Two Cases in which the Drug was Used. A. R. Craig, Columbia.
48 Case of Cesarean Section Done After Failure to Effect Version in an Impacted Transverse Presentation. G. W. Wagoner, Johnstown.
49 Is the Optometrist Legally and Scientifically Qualified to Practice Medicine? P. J. Kress, Allentown.
50 *Treatment of Infected Wounds with a Phenol Product. C. B. Longenecker, Philadelphia.
51 Craniectomy in Microcephaly. W. D. Teagarden, Washington.
52 Carbolic Acid and Ammonia Burns of the Eye. E. Stieren, Pittsburg.
53 Perirectal Abscess. J. A. Hawkins, Pittsburg.

45. **Prevention of Tuberculosis.**—Anders points out briefly a few indications along the lines of prevention. Alcoholism, whether the result of moderate or excessive but habitual use of the ordinary so-called beverages or drinks, or in the still more subtle and dangerous form of patent or proprietary medicines, the majority of which are obnoxiously alcoholic, should be warned against as one of the most insidious filchers of good health and that vital resistance which laughs at tubercle bacilli. There should be effectual legislation against the granting of marriage licenses to consumptives. More consideration should be given to the prevention of tuberculosis among children. Better provision for the care of the poor, weak, delicate, anemic lads and girls in ill-ventilated, foul, dark and dirty mills and stores, is an imperative and widespread need. Here is a magnificent opportunity for philanthropy; a serious duty of the municipality. The common use of public drinking cups is extremely risky. Travelers should use their personal cups. Individual cups should be used in the public and parochial schools as well as in the few private academies where they are now used. It is encouraging to note that in the twelve years since the agitation began in Rochester, N. Y., and in Philadelphia, the adoption of individual communion cups has occurred in approximately 2,500 churches of the principal denominations of the United States. School children should be taught the fundamental facts about tuberculosis in the course of hygiene, such as proper modes of living especially antagonistic to the development of the disease, cleanliness in the home, and so forth. In fact, "the essentials of our knowledge regarding tuberculosis should be known to everybody. In the public school, in the family, and in the secular, religious and professional press, the elementary truths should be brought out so plainly and forcibly that the peril of the 'white plague' may be realized and proper precautions be taken."

50. **Treatment of Infected Wounds.**—Longenecker reports 3 cases of infected wounds which were treated successfully by the use of camphorated phenol. He urges its more extensive use, both in the form of an ointment and of a 50 per cent. solution.

University of Pennsylvania Medical Bulletin, Philadelphia.

April.

54 *Effect of Tuberculosis Vaccination on Cattle Infected with Tuberculosis. L. Pearson and S. H. Gilliland.
55 Study of the Pathologic Changes in Some Mound-Builders Bones from the Ohio Valley, with Especial Reference to Syphilis. S. T. Orton.
56 Studies on Cell Granula and Amebold Movements of the Blood Cells of Limulus. L. Loeb.
57 *Nature of Paratyphoid Fever and Its Closely Allied Infections. H. Fox.

54. **Effect of Tuberculosis Vaccination on Infected Cattle.**—In connection with some tuberculosis vaccination experiments made by Pearson and Gilliland, the opportunity occurred to test the effect of vaccination on some young cattle already infected with tuberculosis. Twelve calves responded to the tuberculin test. They were divided into two lots of 6 each, and one of these lots was subdivided into two groups of 3 each. The 3 calves of one group were given seven intravenous injections of a standard suspension in water of human tubercle bacilli. The dosage began at 1 c.c. and was increased to 6 c.c. The intervals between the injections were from six to twenty days; the time of treatment was about three months. The 3 calves of the second group were given subcutaneous injections of tuberculin at intervals of from two to ten days until the hypersensitiveness of the animal to tuberculin had disappeared, after which the calves received an intravenous injection of a suspension of tubercle bacilli in water, when the foregoing procedure was repeated. The remaining 6 calves were given no treatment whatever, but were at all times kept

with the 6 calves under treatment, so that all the 12 calves were subjected to the same condition of life and subsisted on the same kind and quantity of food. When the cattle died or were killed they were submitted to careful postmortem examination. The observations recorded show a decided difference between the lot of 6 young cattle that were treated and the 6 that were not treated. Since the two lots of animals were in all respects as nearly equal as possible at the beginning of the experiment, and since they were cared for all together and in precisely the same way, except in respect to specific treatment, it is but fair to conclude that the six treated animals were favorably influenced by the treatment. The authors have sufficient evidence to justify the statement that the treatment to which six of the animals were subjected had the effect not only of keeping in check the progress of the tuberculous process, but in causing a distinct and in some cases a great retrogression of the lesions. In other words, the treatment had a distinct curative effect. In all the treated animals the lesions were quiescent and encapsulated. But they contained living tubercle bacilli. These experiments, which were made on a few young cattle in the earlier stage of tuberculosis, do not justify conclusions or inferences as to the probable effect of similar treatment on older and more extensively diseased animals, but the authors hold that the experiments made show clearly that under such treatment as was given tuberculous lesions do not extend; on the contrary, that they recede and that new implantations do not occur even on prolonged contact with tuberculous herd mates.

57. **Nature of Paratyphoid Fever.**—Fox traces the relations of, and classifies in order, typhoid, paratyphoid, paracolon infection and meat poisoning. He concludes that paratyphoid fever differs from typhoid fever in: (a) a shorter invasion stage and rise of temperature; (b) shorter or absent periods of continued fever, and (c) marked diurnal remissions of temperature, much deeper than enteric and without periodicity. An absence of the Widal reaction is suggestive, if it persist in reasonably high dilutions. The duration is, on the whole, shorter than typhoid, and the cases where type "B" was adjudged the etiologic rôle this fact is more striking than in the type "A" cases. The general findings of the type "A" cases are nearer to typhoid than type "B", the latter presenting a picture more like septicemia. The complications of type "B" infections are more numerous, and the course is more fulminating in these cases. The causal germs belong to the intermediates of the typho-colon series, the type "A" being nearer to the bacillus of Eberth and Gaffky, while type "B" approaches the meat-poisoning group. The clinical evidences of the respective organisms just named agree with their general properies and relations to infections in this order, ranging from the subacute typhoid to the hyperacute meat-poisoning. Antityphoid serum will clump the paratyphoid "B" at the same time as the *B. typhosus*, sometimes even in higher dilutions; so that a positive reaction of a patient's serum to both *B. typhosus* and paratyphosus "B," even if the latter be in higher dilutions, will not permit a diagnosis. On the other hand, only twelve times in 94 cases of typhoid fever did the serum react with the type "A" paratypho[1]; so that a positive reaction with type "A" and not with the bacillus of Eberth may be taken as nearly a proof of the existence of an "A" paratyphoid infection. That there must be some other factor responsible for coagglutinations than an increased value of the agglutinins normally present in the blood seems probable. The best proof of existence of a para infection is the isolation of the bacterium, the saturation test, and, last, the bactericidal action.

Therapeutic Gazette, Detroit, Mich.

May.

58 Treatment of Retrodisplacement of the Uterus: a Clinical Study Based on Records of 653 Cases. B. C. Hirst.
59 Pasteur Treatment for Rabies Administered at the Patient's Home. M. Solis-Cohen.
60 *Observations on Urine After Anesthesia. C. E. Goodwin, Weedsport, N. Y.
61 Diaphoresis in Treatment of Eye Diseases. H. F. Hansell, Philadelphia.

60. **Urine After Anesthesia.**—In 65 chloroform cases observed by Goodwin, the urine showed albumin or casts (or both) induced or increased after inhalation in 40 per cent. of the cases, sugar occurring in one instance. In 61 cases of anesthesia produced by nitrous oxid followed by ether, albumin and casts occurred or were increased in the urine in 12 per cent., one case showing sugar. In 41 cases of chloroform followed by ether, albumin and casts were induced or increased in 41.5 per cent. of the cases. In 28 ether anesthesias, 39 per cent. of the cases showed albumin and casts increased or present afresh after the narcosis, two cases also showing fresh occurrence of sugar in small quantities. In these cases the albumin and casts usually disappeared in a few days, though rarely they persisted for ten days. The sugar disappeared in all cases after the first day.

International Clinics, Philadelphia.

62 Treatment of Cardiac Asthma. Vol. I., Fifteenth Series. P. Merklen.
63 Treatment of Cirrhosis of the Liver, Unusual Syphilis, Tuberculosis, Suffocative Catarrh and Mucomembranous Enterocolitis. Albert Robin.
64 Therapeutic Indications in Infected Cholelithiasis. A. Chauffard.
65 Carbohydrates of Human Urine in Health and in Disease. C. Douglas.
66 The Eye and the Hand in the Diagnosis of Heart Disease. J. J. Walsh.
67 Early Diagnosis of Heart Disease in Children. J. P. Parkinson.
68 Aortic Stenosis; Adherent Pericardium. M. Manges.
69 Intestinal Adhesions and Report of a Case Illustrating Elasticity of the Hepatic Support. A. L. Benedict.
70 Skin Grafting in the Late Treatment of Severe Burns Involving Extensive Areas of Skin. A. Young.
71 Starvation of Malignant Growths by Depriving Them of Blood Supply. R. H. M. Dawbarn.
72 New Operative Method for the Total Extirpation of the Larynx. F. Durante.
73 Treatment of Knee-Joint Disease. R. A. Hibbs.
74 Treatment of Glenard's Disease. A. E. Gallant.
75 Morphinomania, Cocomania and General Narcomania, and Some of Their Legal Consequences. C. K. Mills.
76 Case of Cerebellar Tumor. J. W. Carr, London.
77 Two Cases of Ocular Palsy, in Both of which the Paralysis Was Probably Dependent on a Lesion in the Neighborhood of the Sphenoidal Fissure. E. Bramwell.
78 Anterior and Posterior Parietal Presentations of the Head in Slightly Flattened Pelves. R. Jardine, Edinburgh.

Annals of Gynecology and Pediatry, Boston.

April.

79 Case of Congenital Absence of Vagina and Uterus; Artificial Vagina; Subsequent Operation for Appendicitis. A. L. Smith, Montreal.
80 Case of Pregnancy in One Cornu of a Bicornate Uterus; Complicated Labor. F. Washburn, Jefferson, Mass.
81 Treatment of Wounds and Contusions of Pelvic Outlet Produced During Labor. J. W. P. Smithwick, La Grange, N. C.

May.

82 Pregnancy Developed in an Ante-latero-flexed Uterus, Mistaken for Extrauterine Pregnancy. Dr. G. Fleux.
83 Suprapubic Cystotomy in Children. C. G. Cumston, Boston.

The Laryngoscope, St. Louis.

April.

84 Foreign Bodies in Trachea, Bronchi and Esophagus. The Aid of Esophagoscopy, Bronchoscopy and Magnetism in Their Extraction. C. Jackson, Pittsburg, Pa.
85 Abscess of the Tongue; Report of Two Cases. F. C. Cobb, Boston.
86 Report of Case of Keratosis of Throat. H. Foster Kansas City, Mo.
87 Osteomyelitis of Temporal Bone. C. W. Richardson, Washington, D. C.
88 Aural Neuralgia of Dental Origin. G. L. Richards, Fall River, Mass.
89 Nasofibroma Treated by Injections of Monochloracetic Acid. H. Smith, New York.
90 Adenocarcinoma of Nose. Killian Operation for Radical Removal. J. McCoy, New York.
91 Case of Multiple Sinusitis Cured by the Killian and Caldwell Luc Methods. H. B. Hitz, Milwaukee.
92 Turbinectomy. D. S. Reynolds.

Medical Examiner and Practitioner, New York City.

April.

93 Insanity and Epilepsy in Relation to Life Insurance. W. R. Gowers, London.
94 Cullings from the Desk. E. H. Hammil.
95 "Plimsoll Mark" in Life-Insurance Examinations. W. H. Lawton, Philadelphia.
96 Subjective Symptoms of Importance. T. D. Davis, Pittsburg, Pa.

Chicago Medical Recorder.

May.

97 When Should a Uterine Myoma be Operated On? W. M. Thompson, Chicago.
98 Occurrence of Influenza Outside of Epidemics. J. B. Tyrrell, Alta, Iowa.
99 Sajous "The Internal Secretions and the Principles of Medicine." W. F. Waugh, Chicago.
100 Osteomalacia. C. B. Reed, Chicago.

Alabama Medical Journal, Birmingham, Ala.

May.

101 Annual Oration. S. Harris, Union Springs, Ala.
102 Jerome Cochran Lecture—The Problems of Surgery. R. Abbe, New York City.
103 Iritis. L. G. Woodson, Birmingham, Ala.

104 Contract Doctor. G. A. Hogan, Bessemer, Ala.
105 Management of Pulmonary Tuberculosis from the Standpoint of the General Practitioner. E. A. Jones, Raton, New Mexico.

Virginia Medical Semi-Monthly, Richmond, Va.

May 26.

106 Commission of Lunacy—Its Scope and Limitations. W. F. Drewry, Petersburg, Va.
107 Origin of Tuberculosis in Children. R. W. Hynds, Atlanta, Ga.
108 Eczema; Its Symptomatology, Etiology and Diagnosis. T. W. Murrell, Richmond, Va.
109 Treatment of Eczema. F. H. Beadles, Richmond, Va.
110 Symptoms and Treatment of Lobar Pneumonia. T. H. Woolsey, Greeneville, Tenn.
111 Points Out of My Own Experience in Refraction and the Fitting of Glasses. R. P. Cox, Rome, Ga.
112 Principles of Surgery. S. McGuire, Richmond, Va.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal (Educational Number).

June 3.

1 *Medical Profession Abroad.
2 *Medical Profession in Europe and the British Colonies.

1. **Medical Profession Abroad.**—In this article is presented a general view of the situation as it obtains in Europe; the training and qualification necessary to graduation in medicine; requirements for licensure; the rights and duties of practitioners; a survey of the public services; professional income; contract practice; unqualified practice; protection of professional interests; the social position of the profession, and the doctor in politics.

2. **Medical Profession in Europe and British Colonies.**—This article is a more extended discussion of the topics mentioned in the foregoing, and has reference particularly to the several countries of Europe and all the British possessions. Special attention is given to the laws relating to the practice of medicine, medical education and such other matters as are of interest to physicians.

The Lancet, London.

June 3.

3 The General Conditions of Medical Studies and of Hospital Administration in Paris; Apropos of the Visit of the British physicians to France.
4 Laryngeal Paralyses and Their Diagnostic Value. H. Barwell, London.
5 Conditions Affecting the Development of Flagellated Organisms from Leishman Bodies, and Their Bearing on the Probable Mode of Infection. L. Rogers, Calcutta.
6 *Case of Widespread Ulceration of Skin and Connective Tissue. W. B. Watson, London.
7 *Operation of Jejunostomy. Mayo Robinson, London.
8 *Second Dentition; Its Medical Aspects. H. Armstrong, Liverpool.
9 *Typhoid Fever and Pregnancy, with Special Reference to Fetal Infection. H. T. Hicks and H. French, London.
10 *Action of Yeast in Tuberculosis and Its Influence on the Opsonic Index. W. R. Huggard, London.
11 Treatment of Toxemic Symptoms in Scarlet Fever. A. K. Gordon, Manchester.
12 Innominate Aneurism; Simultaneous Ligature of Right Carotid and Subclavian Arteries. Recovery. N. N. Dunn.
13 Coexistence of Cystic Mesometrium and Tubal Pregnancy. F. J. S. Heaney, Blackpool.
14 Sanitation and the Panama Canal. J. G. Leigh.

6. **Widespread Ulceration of Skin.**—Watson reports the case of a man, aged 61, who suffered with extensive ulceration of the skin and connective tissues. Except for a somewhat severe attack of influenza 16 years previously, and of pleurisy six years previously, the patient had always been healthy. There was no personal history of sickness nor a family history of tuberculosis. The patient first noticed a small lump in the left buttock which slowly increased in size. A second lump soon appeared, a little higher than the first and nearer to the spine. Both lumps ultimately burst. Shortly afterward lumps began to form in the left groin. Recourse was had to surgical treatment, the lumps in the back and a number of enlarged glands from the groin being removed and the parts scraped. After a few months these places healed, but the disease showed itself in many other localities. The course from now on was a progressively downward one. The patient's general condition was very bad. Many of the ulcers were deep, with irregular, unhealthy looking bases. They were in varying degrees of inflammatory activity. With the presence of sinuses and numerous bunches of flabby unhealthy granulations, the lesions presented a complete clinical picture of tuberculous ulceration of the skin and connective tissue. The treatment consisted of rest in bed and abundance of good food, combined with cod-liver oil, syrup of iodid of iron in full doses, and other tonics. The ulcerations were treated antiseptically. The patient recovered and is now in excellent health.

7. **New Operation of Jejunostomy.**—The operation described by Robson consists in taking a loop of the beginning of the jejunum just sufficiently long to reach the surface without tension; the two arms of the loop are short-circuited about three or four inches from the surface, the short-circuiting being done either by means of sutures around a decalcified bone bobbin or by sutures alone. Robson prefers the former. A small incision is then made into the top of the loop just large enough to admit a No. 12 Jaques catheter, which is inserted and passed for three inches down the distal arm of the loop. This is fixed to the margin of the incision in the gut by a silk or Pagenstecher's suture, and the entrance of the tube into the bowel is further guarded by two pursestring sutures, one over the other. The top of the loop is fixed to the skin by one or two stitches and the wound is closed. The patient can then be fed at once with peptonized milk and brandy. The whole operation can be done in from fifteen to twenty minutes and with very little visceral exposure. Should the patient be too ill to bear the little extra time occupied by the short-circuiting, the tube may be inserted as directed and surrounded by two or three pursestring sutures. In this case the loop of bowel must not be brought to the skin, but would better be fixed by sutures to the peritoneal margin and the aponeurosis in order to leave part of the lumen of the attached loop within the abdomen for the direct passage onward of the intestinal fluid with the bile and pancreatic secretion.

8. **Medical Aspects of Second Dentition.**—In this article Armstrong discusses the influence of general or local disease, such as rickets, hereditary syphilis, the acute fevers, particularly measles and adenoids, as a cause of faulty dentition; faulty dentition as a cause of general or local disease, and the influence of dentition on concurrent general disease, such as hysteria, chorea and other neuroses.

9. **Typhoid and Pregnancy.**—Among the problems discussed by Hicks and French are the following: 1. Are typhoid bacilli transmitted from the mother to the fetus? In 10 cases typhoid bacilli were found in the fetal organs or blood. In 11 cases the bacilli were looked for and not found. When bacilli were found in the fetus delivery occurred late in the fever, from the third week of the disease to the twenty-fifth day of a relapse. It would seem, therefore, that the duration of the typhoid is an important factor in determining infection of the fetus. This raises the question whether, in cases where the fetus is viable, labor should not be induced as early as possible in order to save the child from infection. 2. The effect of pregnancy on the mother who has typhoid. Typhoid occurring during pregnancy does not affect the prognosis or alter the course of the disease, as was noted in 7 cases. The death rate was 14 per cent. 3. The effect of typhoid in the mother on the pregnancy. The effect of enteric fever on the pregnancy is bad. In the majority of cases abortion or premature labor takes place. The delivery is usually easy and the patient experiences considerable relief. The uterus involutes just as if there were no maternal illness. The fetus, even if viable, is often born dead or dies soon after birth.

10. **Yeast in Tuberculosis.**—For the last two years Huggard and Morland have been making systematic observations on the influence of yeast, taken internally, on tuberculosis. The cases at first selected were chronic cases in which the patient had either "stuck in the mud" or was losing ground. The results in some cases were striking, in some encouraging, in others almost *nil*. In no case was there any bad effect, but some patients left off the drug because they disliked the taste of it or thought that it disagreed with them. All the patients appeared to derive some benefit from the remedy. In most cases the downward course either became less rapid or was arrested and the stationary patients improved. On the whole, the results were good enough to lead to a more extended trial. Thirty-six patients were under this treatment for periods varying from two weeks to about one year. Besides these,

there were about six who took the remedy for less than a fortnight but who discontinued it for one reason or another, such as flatulence, dislike of the taste, or disgust at the smell of the yeast. The clinical outcome of all the observations is that some improvement was noted in almost every case in which the remedy was taken steadily for at least a month, though in many cases improvement appeared much earlier. In all but one case tubercle bacilli were present when the yeast treatment was begun. The cases were as follows: (*a*) One patient without tubercle bacilli in the sputum. (*b*) Five patients in whom tubercle bacilli disappeared and the disease became seemingly arrested while under yeast treatment. (*c*) Seven patients in whom the disease is tending toward arrest, but in which tubercle bacilli have not yet disappeared. (*d*) Eleven cases of medium severity and of doubtful prognosis, the patients either losing ground or barely holding their own when the yeast was begun. All but one patient improved more or less; 7 improved both locally and generally; 2 improved generally but not locally; 1 remained practically unchanged both generally and locally, though the opsonic index rose; in one renal tuberculosis and albuminuria were found. In 6 of the cases there was a diminution of tubercle bacilli; in three of the cases an increase; and in two cases the numbers were unchanged. In two cases renal as well as pulmonary tuberculosis was present. In one tubercle bacilli have now almost disappeared. In the other of these two cases there was laryngeal as well as pulmonary tuberculosis and during the yeast treatment renal tuberculosis and albuminuria were discovered after the appearance of gouty pains in the joints of the hands and feet. The patient felt well and seemed in better health than previously. The state of the lungs and of the larynx improved at the same time. (*e*) Twelve advanced cases of bad prognosis, nine of the patients with more or less pyrexia. All appeared to benefit in general health to some extent, at least for a time. Seven improved considerably in local as well as in general condition and show some promise of reaching a stage of tolerance or quiescence. In two there was no material change in the local condition. In one case excavation which had already been extensive seemed to go on even more rapidly, in spite of some improvement in the general health. Two of the patients died subsequently.

As regards the general effects of the yeast, some patients did not notice any influence whatever. Some felt a sense of well-being; two or three had a feeling of exhilaration. Several patients said that their appetite and digestion were better on taking yeast. A few complained of flatulence, less noticeable or absent when the yeast was taken on an empty stomach. Two or three patients said that under its use the bowels acted more regularly. Two or three patients found that owing to the taste or smell it caused a feeling of nausea or disgust and in these cases it was of course dropped at once. In two or three cases gouty or rheumatic pains were complained of after yeast had been taken for some little time. The discovery of albuminuria with renal tuberculosis in one individual who was taking yeast led to an examination of all the other patients available but in none was there any evidence of renal irritation, though one of these cases a little time before beginning the yeast treatment had had albuminuria with granular casts and another also had well-marked renal tuberculosis before the treatment was begun. Yeast did not appear to have any influence on the temperature of patients suffering from a febrile tendency. Influenza in a mild form occurred in two or three patients while they were taking yeast, which therefore can hardly be looked on as a preventive.

Bulletin de l'Académie de Médecine, Paris.

15 (Year LXIX, No. 21.) *Extraction of Foreign Body in Esophagus.—Traitement des corps étrangers de l'esophage. Suarez de Mendoza.
16 *Sur l'emploi des rayons Roentgen. Debove.
17 *Poison in Stings of Bees, Wasps, etc.—Le venin des hyménoptères. P. Fabre.

15. **Extraction of Foreign Body in Esophagus.**—Mendoza uses the Graefe basket as a rule, but when impossible to introduce it on account of spasmodic contraction, he precedes it with the Collin-Verneuil instrument. This dilates the esophagus, after which it is generally easy to insert the Graefe basket and to extract the foreign body. If even this proves unsuccessful, the Tarnier bag can be introduced. By distending the walls it releases the impacted foreign body and allows its extraction without injury to the tissues.

16. **Application of Roentgen Rays.**—Debove reported to the *Académie* the resolution adopted by the recent Roentgen Congress at Berlin, which urged that the use of the Roentgen rays belongs exclusively to the medical domain. He advocated the appointment of a committee to study the subject and to report as to whether the public authorities should interfere to restrict the use of the Roentgen rays for diagnostic and therapeutic purposes to the medical profession alone. A committee was appointed in accordance with his suggestion, consisting of himself, Brouardel and seven others.

17. **Poison of Bee, Wasp and Hornet Stings.**—Fabre relates about a dozen cases of stings followed by severe general symptoms, fatal in some instances. The symptoms involve the respiratory, digestive, nervous and secretory systems, and are distinguished by the rapidity with which they develop and their intensity. The action of the poison of the hymenoptera is frequently more subtle and generally more rapid than that of snake or viper venom, which it resembles in many respects. Antivenin might be used if the symptoms did not develop with such rapidity. The most effectual treatment is by aiding nature to eliminate the poison through the sweat, urine, saliva and feces. Her efforts in this direction are plainly evident in the symptoms observed, and the physician should cooperate by administering diffusible stimulants, diuretics, sialagogs and purgatives. Experimental and clinical experience seems to indicate that the kidneys are the chief emunctories concerned. Among the general symptoms cited in the cases he describes are edema suggesting erysipelas, eruptions, syncope, nausea, vomiting, diarrhea and irregularities in the pulse. Local treatment should be by the immediate application of lime water, salt or strong brine, supplemented by a hot aromatic drink containing some diffusible stimulant such as ether or peppermint, to favor the elimination of the venom through the skin and kidneys. Vinegar water or ammonia usually neutralizes bee stings. The little blister formed by the clear venom deposited by the insect should be carefully removed without extracting the sting beforehand and without the slightest pressure on the latter, as this would merely squeeze out more of the venom. Attempts to induce immunity by submitting to the stings of bees have been successful in some instances to a certain extent.

Presse Médicale, Paris.

18 (No. 38, May 13.) *Technique de la palatoplastie. A. Broca.
19 (No. 39.) *Sudden Death in Acute Articular Rheumatism.—La mort brusque dans le rhumatisme articulaire aigu. A. Gouget.
20 (No. 40.) *Le tabes infantile juvenile. E. Hirtz and H. Lemaire.
21 *Le pronostic de la pneumonie chez l'enfant (in children). E. Terrien.
22 (No. 41.) La dysentérie bacillaire a Bordeaux. B. Auche.
23 Obstétrique et medicine légale. O. A. Lop.
24 Stains for Spirilla.—Techniques pour la coloration des spirilles.
25 (No. 42.) *Extramedian Symphyseotomy.—La section latérale du pubis appréciée d 'après les résultats fournis par 90 interventions. L. Gigli.
26 The Carbonated Baths at Royat in Heart Affections.—Traitement de l'insuffisance cardiaque par les bains carbo-gazeux de Royat. J. Heitz.
27 (No. 43.) *Syphilis congénitale et Spirochaete pallida Schaudinn. C. Levaditi.
28 140 nouveaux cas de rachi-stovainisation. L. Kendirdjy and V. Burgeud.
29 Atrophic Alopecia.—La pseudo-pelade. L. M. Pautrier.

18. **Technic of Plastic Operations on Palate.**—Broca describes with nine illustrations the details of these operations as he has performed them on 140 patients. He says that he has not invented anything new, but by combining the suggestions of others is able to perform the operation rapidly, safely and thoroughly. In the last 110 cases there has been no mortality, and only 2 deaths occurred in his entire experience, and these before 1895.

19. **Sudden Death in Acute Articular Rheumatism.**—Death may occur abruptly during acute articular rheumatism from cerebral manifestations, from syncope, from orthopnea and subacute asphyxia or from obliteration of the mitral orifice by a thrombus. Gouget describes a case of the latter kind,

with the autopsy findings. Old endocarditic lesions had evidently favored the development of the thrombus. The patient had had previous attacks of acute articular rheumatism, each accompanied by hemoptysis, probably from embolism or merely from the congestion in the lungs The weakness of the heart and the excess of fibrin in the blood, which is the rule in rheumatism, evidently co-operated in the fatal result. Gouget has collected from the literature 9 cases of death from syncope or subacute asphyxia in the early stages of acute articular rheumatism; 6 were in women and 3 in men. This proportion of two-thirds women to one-third men is the same as was observed in the 30 cases of malignant rheumatic endocarditis. The 2 cases of "brain rheumatism" which he mentions both occurred in hard drinkers. Death from syncope may occur during convalescence, and is generally preceded by some effort. The cavities of the heart are much dilated in this case. When death is due to subacute asphyxia, the autopsy reveals either acute pulmonary edema or embolism or intracardiac thrombosis.

20. **Infantile Juvenile Tabes.**—Hirtz remarks that no report is on record of the postmortem findings in this affection, although he has found 47 cases described in the literature. The first manifestations are, in order of frequency, incontinence of urine, lightning pains, amblyopia and gastric crises. The first of these symptoms was noted as the initial one in about half the cases on record, and amblyopia in about 14 per cent., with lightning pains in less than 33 per cent. Amblyopia became superposed on other symptoms in about 36 per cent. Experience has shown that the tabes of these young patients remains mild and develops extremely slowly.

21. **Prognosis of Pneumonia in Children.**—Terrien reports 2 cases of sudden death in the course of pneumonia in an infant and in a girl of 10. Evidences of purulent pericarditis were discovered in the first case, but no cause for the death could be detected in the second except acute and rapid dilatation of the heart. The child had entered the hospital on account of moderate chorea ten days before the first symptoms of the apparently mild pneumonia were noted. He refers to similar cases that have been published in which previously healthy children died suddenly in the course of an apparently mild pneumonia of the right apex. Extrapulmonary localizations are frequent in pneumonia, but sudden or rapid death is liable to occur at any age, with or without extrapulmonary localizations. Cyanosis is generally the first sign of impending danger, whether it is the indication of some pericardial localization or merely of simple, acute dilatation of the heart.

25. **Extramedian Symphyseotomy.**—Gigli's method of lateral section of the pubis, pubotomy or hebotomy, as it is variably called, has now been performed in 90 cases in which a contracted pelvis required symphyseotomy or its equivalent. The surgical wound healed by primary intention in every instance, even when there was puerperal infection. The list of operators includes Berry Hart of Edinburgh, Canton of Buenos Ayres, Döderlein of Tübingen, Fleischmann of Vienna, Hofmeyer of Würzburg, Leopold of Dresden, Meyer of Copenhagen, Meurer of Amsterdam, Tauffer of Budapest, Van de Velde of Harlem, von Franqué of Prague, Walcher of Stuttgart and Zweifel of Leipsic, besides 14 prominent Italian and several French accoucheurs. The operation and its results have been duly chronicled in THE JOURNAL, as for instance on pages 1426 and 1909 of volume xliii. It was rendered possible by the invention of the Gigli wire saw. The wound is in the bone, outside of the joint, and has none of the drawbacks of interference with an articulation, while it has all the advantages and more of symphyseotomy, Gigli claims.

27. **Congenital Syphilis and the Spirochaete Pallida.**—Levaditi reports 3 cases of congenital syphilis in which the *Spirochaete pallida* was discovered in the cutaneous lesions and in the organs of new-born infants. Control research on other infants was invariably negative. The spirochaetes were found in the first infant in the vesicles of hereditary syphilitic pemphigus and in incipient cutaneous papules. In the second infant they were found in the papules, in the spleen, lung and liver, and in the third in the pemphigoid lesions, spleen and liver.

Revue de Médecine, Paris.

Last indexed XLIV page 832.

30 (XXIV, No. 7.) Des variations du poids au cours de la variole (variations in weight). M. Garnier and G. Sabaréanu.
31 Loss of Muscle Sense in Fingers of Both Hands with Intact Sensibility of Muscles of Hand and Forearm.—Perte du sens musculaire aux doigts, etc. Bouchaud. (Concluded from preceding volume.)
32 Observation de tremblement hystérique. C. Boucarut.
33 (No. 8.) *Anémie dite pernicieuse progressive; 3 cas. P. E. Launois and P. E. Weil.
34 Etude des inversions viscérales. V. LeGoic.
35 *Variations de la tension artérielle dans la fièvre typhoide chez l'enfant (in children). G. Carrière and C. Dancourt. (Commenced in No. 7.)
36 (No. 9.) Cas de syringomyélie et syringobulbie. Dégénération du ruban de Reil. S. A. K. Wilson, (Edinburgh).
37 Essai sur la physiologie pathologique du mouvement. Disparition des mouvements dans la chorée chronique. N. Vaschide and C. Vurpas.
38 Les échanges osmotiques en biologie (interchanges). M. Labbé.
39 (No. 10.) Les lacunes de désintégration cérébrale. G. Catola.
40 2 observations d'ictère chronique familial avec splénomégalie. L. Lertal-Jacob and G. Sabaréaunu.

33. **Progressive Pernicious Anemia.**—In the 3 cases described the morbid substance causing the trouble seemed to have a destructive action on the reds and an invigorating action on the white corpuscles. No infection or intoxication could be found to account for this except possibly syphilis in one case. Mercurial treatment failed to influence the anemia, and no benefit was derived in any instance from iron, arsenic and marrow organotherapy.

35. **Blood Pressure in Typhoid Fever.**—In the 41 children examined the blood pressure was always below normal, and likewise in grippe and in tuberculous meningitis, but not in 2 cases of acute osteomyelitis. The pressure was normal or slightly above in acute meningitis, in "meningism," and also in endocarditis, otitis, pneumonia, etc. In typhoid in children the blood pressure is absolutely and relatively much lower than in adults, although, exceptionally, hypertension may prevail. The blood pressure has no diagnostic or prognostic importance in typhoid fever in children, but it reveals an impending or present complication. A hemorrhage is preceded by an unusually high pressure, which also accompanies congestions, especially congestion of the lungs. It may likewise be the precursor of violent delirium or of endocarditis. The blood pressure is not influenced by gastrointestinal troubles nor by the development of an abscess nor by an intercurrent infection or aortic lesion.

Archiv f. klinische Chirurgie, Langenbeck's, Berlin.

Last indexed XLIV, page 1568.

41 (LXXVI, Nos. 1-2.) *Experimentelle Untersuchungen zur Physiologie und Pathologie des Peritoneums. P. Clairmont and H. Haberer (von Eiselberg's clinic, Vienna).
42 *Zur Behandlung der diffusen eitrigen Peritonitis. P. Clairmont and E. Ranzi (ibid).
43 *Ueber postoperative Magen- und Darmblutungen (hemorrhages in stomach and intestines). W. Busse (ibid).
44 Bericht über 258 von Prof. v. Eiselsberg ausgeführte Magen-Operationen (on stomach). P. Clairmont (ibid).
45 *Zur Appendix-Frage, mit bes. Berücksichtigung von Dauer-Resultate (ultimate results). H. Haberer (ibid).
46 *Zur Appendix-Frage, mit bes. Berücksichtigung von Dauer-Resultate (ultimate results). H. Haberer (ibid).
47 *Unilateral Exclusion of Part of Intestines.—Zur Technik der unilateralen Darmausschaltung. (Apposition end-to-side, Senn.) Id.
48 Tied-off Intestine as Content of Femoral Hernia.—Abgeschnürter Darm als Inhalt einer Hernia ischiadica. v. Eiselsberg.
49 Diverticula in Bladder.—Zur Therapie der Blasendivertikel, nebst Bemerkungen über Complication derselben. G. A. Wagner (ibid).
50 Zur Casuistik der Knochen-Cysten (of bones). H. Haberer (ibid).
51 (No. 3.) *Die Unterbindung der Aorta, ihre physiologische und ihre therapeutische Bedeutung (ligation of aorta). M. Katzenstein.
52 Die Luxatio ossis lunati volaris eine Luxatio ossis capitati dorsalis. Lilienfeld.
53 *Zur Kenntniss der Hoden-Embryome (of testicle). A. Müller (Basle).
54 Zur Ranula-Frage. K. Försterling (Hannover).
55 *Indicationen und Methoden der Operation des Kehlkopfkrebses (laryngeal cancer). E. v. Navratil (Budapest).
56 Ileus and Volvulus with Movable Cœcum and Ascending Colon.—Die anatomische Form des Volvulus und Darmverschlusses bei beweglichem Coecocolon ascendens. G. Ekehorn (Sundsvall).
57 *Werth der Kryoskopie für die Nieren-Chirurgie (of kidneys). O. Rumpel.
58 *Justification of Early Operative Intervention for Subcutaneous Fractures of the Bones. Fritz König (Altona).
59 *Lymph-angiectasia in the Groin and Other Results of Stagnation of Lymph.—Die Lymphangiectasie der Leiste und andere Folgeerscheinungen der Lymphstauung. H. Gross.
60 Hemolysins in Severe Burns.—Verhalten der Hämolysine bei schweren Hautverbrennungen. H. Doering (Göttingen).

41. **Physiology and Pathology of Peritoneum.**—The ability of the peritoneum to protect itself has been exhaustively studied by Clairmont and Haberer on rabbits. About 10 c.c. of a 2 per cent. solution of potassium iodid was injected directly into the peritoneum without previous incision. The results have convincingly demonstrated, they think, that moist eventration and rinsing is not only the best means of preventing, but also aids in curing peritonitis. The favorable effects were evident whether the peritoneum was normal or already inflamed. In regard to leucocytosis and phagocytosis there did not seem to be much difference between irrigated and dry operations. Eventration can not be done without an abundant emigration of leucocytes. They display at first an energetic phagocytosis, but this soon subsides and finally sinks considerably below normal. Their experiments confirmed their former assertions in regard to the way in which increased peristalsis after administration of a little physostigmin hastens peritoneal absorption, and that sterile fluids injected into the peritoneum do not check absorption. In incipient peritonitis absorption proceeds more vigorously at first but later becomes very sluggish. A moist laparotomy has much less disturbing effect on the processes of absorption than dry laparotomies. In the latter there is venous hyperemia and the peristalsis is arrested; this does not occur when the peritoneum is irrigated. Transudation in the abdominal cavity is not materially affected by a laparotomy. The active hyperemia which accompanies the inflammation is the cause of the rapid absorption at first. The intensity of the inflammation depends on the virulence of the germs more than on all the other conditions combined. In regard to the benefits of rinsing after laparotomy, the peritoneum of the rinsed animals was invariably found in much better condition than in the controls. Eighty-seven rabbits and guinea-pigs were infected with pus of a standard virulence, laparotomized after an interval of from ten minutes to ten hours, and the peritoneum was then rinsed without tamponing. The animals all died, some of them even earlier than the controls, but the peritoneum was always in a much better condition than in the controls. There was none of the turbid effusion nor fibrinous deposits on the intestines nor loose adhesions between them. Scarcely a trace of inflammatory changes could be detected. In a further series of ten experiments diphtheria toxin was injected into the peritoneum and it was then rinsed out. Twenty times the fatal dose could thus be injected and rinsed out again without the slightest symptoms, while all the controls died with the typical syndrome.

42. **Treatment of Diffuse Suppurative Peritonitis.**—The lessons learned from 41 cases during the last three or four years are that operative treatment is indicated in all cases of diffuse peritonitis, even in the advanced stages. Immediate laparotomy is the only treatment, and the chances are better the earlier it is done. Incision on the median line is preferable unless the starting point is clinically demonstrable. The infectious agents and the exudate are best removed by copious irrigation with salt solution, with partial eventration of the intestinal loops. The abdomen should not be closed entirely; extensive tamponing is preferable. Jejunostomy is indicated in case of perforation of stomach or duodenum by an ulcer or cancer. Copious saline infusion is the main point in the after-treatment. The cases are classified and the histories related in detail.

43. **Postoperative Gastrointestinal Hemorrhage.**—Busse describes 14 cases of bleeding in the stomach or duodenum after an operation, and reviews 82 similar cases collected from the literature. The operations were chiefly laparotomies, but the hemorrhages occurred after operations almost anywhere on the body. The literature is extensively analyzed. The prognosis of these postoperative hemorrhages is grave, fully 55 per cent. of the patients having succumbed in consequence. The mortality in the last series of 14 cases was only 21 per cent., while Purves has reported a mortality of 72.5 per cent. Besides the usual symptomatic measures, gelatin, by the mouth or subcutaneously, and saline infusion have proved useful. Direct or retrograde thrombosis in the arterial or venous domain is probably the explanation of these postoperative hemorrhages. Several factors evidently co-operate with the effects of the operation, local or general disturbances in the circulation, the composition of the blood, trauma from the intervention, the effects of the anesthetic, and also nervous influences. The hemorrhage generally recurs several times, and usually appears during the first week. Erosions and ulcerative processes are sometimes found in the stomach or intestines, but not invariably.

45. **Value of Jejunostomy.**—In 115 pages Lempp proclaims the great advantages of jejunostomy, and discusses the indications for it as learned in an experience of 68 cases in which this operation has been performed during the last ten years. The technic was Eiselsberg's adaptation to the jejunum of Witzel's obliquely embedded tube. It is a simple operation, while it insures complete continence for fluids, and the fistula closes spontaneously when its purpose has been accomplished and the drain holding it open is removed. One of its great advantages is that the patient can be well nourished until normal conditions can be restored. This is particularly important in case of ulcer. The entire stomach region is left at rest and all mechanical demands on the stomach are avoided, and the simple operation can be done under local anesthesia alone. The various indications for jejunostomy are formulated. Among them is extensive injury from swallowing a caustic. If the stomach is much inflated, jejunostomy should be done at once, followed by the first step in gastrostomy, thus relieving the stomach by opening it. The jejunostomy is only temporary in these cases. In case of cancer, he advises exclusive rectal feeding for several days, in order to determine whether exclusion of the stomach has any influence on the symptoms, especially on the pain. If not, then jejunostomy would probably be useless.

46. **The Appendix Question.**—Haberer's article is based on 213 cases. He states that 40 out of 96 patients on whom an "interval operation" was performed have more or less severe disturbances still persisting In some they take the form of obstinate constipation, in others of severe pains, even colics, such as they had experienced before surgical intervention. The wounds had healed by primary intention in the majority of these cases. Among 22 patients who absolutely refused operation, 10 were found at a late date perfectly healthy.

47. **End-to-Side Anastomosis.**—Haberer has been experimenting to learn the best technic for end-to-side anastomosis. He found that much better results were obtained when the free margin of the mesentery was fastened to the under surface of the mesentery of the next loop.

51. **Ligature of Abdominal Aorta.**—Katzenstein says that this operation has been done fourteen times to relieve a peripheral aneurism. It makes great demands on the heart and has never been successful. Collateral circulation soon developed, annulling the benefits of the ligation. The great number of communications with the general circulation render the establishment of collateral circulation inevitable. Its development, however, requires extra work on the part of the heart, thus inducing considerable hypertrophy. In the absence of general atheromatosis of the vessels and if the operation is technically possible, extirpation of the aneurism may be successful. In 10 of the 14 cases on record death was the direct result of the operation.

53. **Embryoma of Testicle.**—Müller's patient was a child of 2. In only a single case on record was the patient an adult. In some instances the embryoma was congenital; in others it developed very slowly in the course of a few months to twenty years. Malignant degeneration was never observed in any of them. Embryoid tumors of the testicles are much more frequent, and 90 per cent. occur after puberty. They generally grow rapidly, sometimes first noticed after a trauma. Malignant degeneration is not uncommon, generally of a sarcomatous nature. The true embryoma, with its predominating ectodermal elements, is much rarer. Müller analyzes the publications on the subject.

55. **Laryngeal Cancer.**—Navratil classifies the various technics for removal of a cancer in the larynx, with the indications calling for each. He illustrates his remarks by the results in a number of clinical cases.

57. **Value of Cryoscopy.**—Rumpel protests against Rovsing's disparaging remarks in regard to cryoscopy (page 915, vol. xliv), maintaining all his previous assertions in respect to its great diagnostic importance, as experience has corroborated them in every particular.

58. **Early Operative Intervention in Subcutaneous Fractures.**—König makes an earnest plea that operative measures should be contemplated from the very first in certain forms of uncomplicated fractures. They are the only means sometimes to insure good functional results, while in other cases they improve the chances and materially simplify treatment. When done at once, the conditions are exceptionally favorable, while the prospects are much less promising after an interval has elapsed. In 18 illustrations and 5 skiagrams he shows the mechanism of healing after operative intervention, and the excellent results, while the abnormal conditions in the patients not operated on prevent proper healing and interfere with function later. He does not advocate surgical treatment of all cases, but only that it should be duly considered in every case from the very first.

59. **Lymphangiectasia and Lymph Congestion.**—Gross states that the present article is the first of a series on the subject of the enlargement of the lymphatics under various influences, especially congestion of the lymph. This article deals with the French conception of what is called adenolymphocele, which is directly opposed to the German conception of lymphangiomata. The monograph contains illustrations of the varicose lymphe-tatic processes in the varicose groin glands in question. It is based on data personally collected in Paris with the co-operation of leading French surgeons. He hints that race prejudice has biased the views of the French in regard to this lesion.

Deutsches Archiv f. klinische Medizin, Leipsic.

Last indexed XLIV, page 1723.

61 (LXXXIII, Nos. 1-2.) *Ueber Diabetes insipidus und andere Polyurien. E. Meyer (Müller's clinich, Munich).
62 Proportionate Hypertrophy in Rabbit Heart in Experimental Tricuspid Insufficiency.—Ueber die Massenverhältnisse des Kaninchenherzens bei experimentell erzeugter Trikuspidalinsufficienz. E. Stadler (Leipsic).
63 *Enterogene Cyanose. A. A. Hijmans v. d. Bergh (Rotterdam).
64 New Formation of Glycogen in Rabbits.—Ueber die Neubildung von Glykogen bei glykogen-freien und auf Karenz gesetzten Kaninchen. Rolly (Leipsic).
65 *Protracted Fever of Obscure Origin.—Ueber langdauernde Fieberzustände unklaren Ursprungs. P. Krause (von Strümpell's clinic, Breslau).
66 Fall von traumatischer Geburtslähmung (birth paralysis). F. Herzog (Budapest).
67 Racial Differences of Typhoid Stems. Inhibiting Bodies in Serum and Agglutination Test.—Ueber Rassenunterschiede von Typhusstämmen, und über Hemmungskörper im Serum in ihrer Bedeutung für die Gruber-Widal'sche Reaktion. W. Falta and C. T. Noeggerath (Basle).
68 *Bakteriologische Untersuchungen bei gonorrhoischen Allgemeininfektionen (general infections). A. Prochaska (Eichhorst's clinic, Zurich).
69 Albuminurie bei Abdominal-Typhus. K. Stolte (Strasburg).

61. **Diabetes Insipidus.**—Meyer analyzes a number of cases of various affections suggesting diabetes insipidus. He believes that it is possible to distinguish the latter from primary polydipsia and from the polyuria accompanying interstitial inflammatory and pyelitic processes. True diabetes insipidus is the result of some functional disturbance in the kidneys. This disturbance is probably a lack of concentrating power. There is no retention of urine-making substances, the molecules and ions correspond entirely to normal, but the inability to produce a concentrated urine compels the elimination of a larger amount of water to dissolve and to wash out the urine-making substances. This drains water away from the system in undue amounts, and if the intake is likewise restricted serious trouble is liable to follow. The disturbance in the kidney functioning is probably of nervous origin; the majority of cases have occurred after some cerebral lesion, a meningitis or neoplasm. True diabetes insipidus can be differentiated by the behavior after increased intake of salts. Patients with primary polydipsia display the normal power of eliminating a concentrated urine under these circumstances, which is not the case in diabetes insipidus. The latter is further distinguished by the fact that while it shares with interstitial and pyelitic processes the inability to produce a concentrated urine, yet the amount of concentration of the urine is much more constant and the substances in solution are eliminated much more promptly and more regularly. Theocin has the effect of raising the concentration in diabetes insipidus without increasing the amount of urine. Phosphoric acid ingested in the form of sodium phosphate is eliminated in both normal conditions and in diabetes insipidus without increasing the amount of urine.

63. **Enterogenic Cyanosis.**—Stokvis and Talma have reported within the last three years four cases of what the former first described as "autotoxic, enterogenic cyanosis." Bergh has two similar cases now under observation, one a boy of 9, the other a young man. In the first patient the spectrum showed the bands of sulpho-hemoglobinemia, while in the second patient the bands exhibited true autotoxic methemoglobinemia. The cyanosis was intense in both cases, but varied in intensity at times, and differed from the cyanosis of carbonic acid intoxication in being more of a violet tint. Both patients had severe intestinal catarrh, but nothing to indicate a cardiac defect. The characteristic spectra in each could be seen in the living subject by applying the spectroscope to the anterior surface of the ear with an incandescent electric light behind the ear. The cyanosis subsided as the intestinal troubles were treated.

65. **Protracted Fever of Obscure Origin.**—Krause emphasizes the great value of bacteriologic examination of the blood in such cases. It may reveal general infection with streptococci, with the typhoid, colon, pyocyaneus or other bacteria, or with the gonococcus or proteus. In one of the cases described from his experience, he was able to diagnose by this means as a proteus general infection a remarkable case of fever of the recurring type which had long puzzled observers. He also calls attention to the possibility of a tertiary syphilis as the cause of a protracted febrile condition. Another case is described in detail in which bacteriologic examination of the blood and of the organs after death was negative and nothing definite could be found to explain the nine months' fatal febrile affection. From eight to twelve years previously the patient had had gonorrhea, articular rheumatism and malaria. The blood and organs examined were always sterile. Krause writes the article to reassure other physicians, when they encounter similar puzzling cases, as others have the same experience occasionally. Heubner has related the case of a man of 40 who had an intermittent fever for three months without an appreciable organ affection or much impairment of his general health. It finally vanished spontaneously in the course of a year or so. Bozzolo's address on this subject was reviewed in THE JOURNAL, vol. xliii, page 1731.

68. **Gonorrheal General Infection.**—Prochaska's six cases illustrate the multiplicity of the affections liable to follow gonorrhea, and also demonstrate the importance of the gonococcus in pathology. In one case there was a painful arthropathy in the knees and an eruption suggesting erythema nodosum. In three other cases there was endocarditis and polyarthritis, in another case a purulent meningitis, and in another the symptoms indicated severe sepsis without localization in any organ.

Münchener medizinische Wochenschrift.

70 (LII, No. 18, May 2.) Importance of Fat Metabolism for Production of Milk, etc.—Die Bedeutung der Fettsynthese, Fettphagozytose, Fettsekretion und Fettdegeneration für die Milch-und Kolostrumbildung. J. Arnold.
71 Die Bedeutung der optischen Emmetropierung für die Behandlung der Kurzsichtigkeit (in treatment of myopia). Pfalz.
72 Zur Frage nach dem Wesen der progressiven Myopie. Seggel.
73 Der Myelitis transversa lumbalis acuta. M. v. Holst.
74 Serum of thyroidectomized Sheep in Exophthalmic Goiter.—Antithyreodin-Moebius bei Basedowscher Krankheit mit Psychose. G. Lomer.
75 Zur Serumbehandlung des Morbus Basedowii. R. Durig.
76 Human Skin and Electricity.—Menschliche Haut und Elektrizität. O. Neustätter.
77 Ueber Anchylostomiasis. A. Tenholt.
78 Eine bequeme und einfache Irrigationsspritze für die Kinderpraxis (syringe for children). Paffenholz.
79 Importance of Roentgen Picture for Orthopedics.—Die Bedeutung des Röntgenbildes für die Orthopädie. F. Lange. (Commenced in No. 17.)
80 Weitere Erfahrungen über Appendizitis mit besonderer Berucksichtigung der Frühoperation (early operation). H. Doerfler.

Sei-I-Kwai, Tokyo.

Last indexed XLIV, page 335.

81 (XXIV, No. 1.) *An Endemic Disease from Special Parasite Previously Unknown in Japan. Katsurada. (Commenced in preceding volume.)

82 (No. 2.) *Leading Cases of the Wounds Inflicted in the Japan-Russia War. Surgeon-General Totsuka.
83 (No. 3.) *The Operating Method of the Bullet Wound Aneurism. T. Kikuchi, Surgeon General, J. I. A.

81. **Endemic Disease from New Parasite.**—Katsurada found the eggs of a trematode in the liver and stools of several cases of the disease described. Also in the liver of a cat from the same district. The disease has long been known in this region, and Katsurada had opportunity to examine from 30 to 54 cases every year while stationed there from 1899 to 1903. Only from 3 to 5 of his patients succumbed annually to its direct ravages, but the indirect mortality was very much larger. Defective physical development is the rule after it attacks a child. Diarrhea is the first symptom, with anemia and ascites later, but the most striking feature is the shape the trunk assumes. The hypogastric region seems to shrink while the epigastric region enlarges. A transverse furrow forms directly above the umbilicus, and the general appearance of the abdominal region resembles that of an inverted gourd. This dilatation of the epigastric region and of the lower part of the thoracic cavity is noted even in those patients whose liver and spleen are not much enlarged. Eggs of tricocephalus dispar, ankylostoma and ascaris were found in the stools besides the eggs of the special parasite. The mother parasite and some eggs were found in the branches of the portal vein. It resembles the male distomum. Specimens of tenia were also found in the cat's intestines. The water standing in the rice fields in summer in this endemic region becomes covered with bubbles. When these bubbles break on contact with the skin there is itching and an eruption follows. Katsurada is convinced that there is some connection between this water-bubble eruption and the liver disease, as such parasites are liable to invade the organism through the skin, especially when their penetration is favored by an eruption. In places where artesian well water is drunk and people refrain from wading in the bubble-covered water the disease is becoming much less frequent.

82. **Shell Wounds During the War in the East.**—Totsuka casually refers to the war as "a lamentable and regretful event, but," he continues, "Japan could not help appealing to arms for the sake of humanity and the peace of the Orient." He then proceeds to discuss various aspects of the severe wounds with loss of tissue which are the results of explosion of torpedoes or shells. He has compiled and classified such as came under his observation during naval engagements, and here presents the first installment. It comprises the cases of wounds of the head from fragments of shells with fracture of the skull. In the first of the six cases described, an irregular, mutilating wound left of the sagittal suture in the center of the parietal region was still suppurating when first seen, eleven days after the injury. An elliptical depression was discovered and a piece of shot found in it was removed with the fragments of bone. The upper longitudinal sinus had been compressed by them, and there was much venous hemorrhage when the clot was removed; this was stopped with dry gauze. The skin flaps were sutured over the gauze, and a pressure bandage applied. The wound rapidly healed and no symptoms of irritation of the brain or meninges developed at any time. Another patient still exhibits marked aphasia although his extensive injuries have all healed. In another, a fatal case, the brain was found a semi-fluid after a shell wound in the forehead. Another patient exhibited a curved lacerating wound 14 cm. long, from which the scalp hung down in a flap, and the greater part of the frontal and part of the parietal bones were fractured with a 3 cm. depression. The bone plate under the skin flap seemed to have lost an area nearly as large as a goose egg. The scalp was rather depressed and the first-aid surgeon had made a crescent-shaped incision on both sides of the wound to facilitate extraction of bone splinters. The man was unconscious for three days, but then the wound took a favorable turn and no further brain disturbances were noted. Convalescence is progressing fast.

83. **Bullet Wound Aneurism.**—By this term Kikuchi refers to the arteriovenous aneurism developing from a bullet wound. In 20 such cases under his observation during the last year the femoral artery and vein were involved in 8, the popliteal in 5, and the posterior tibial in 1. The others were in the arm. Instead of tying the injured vessels outside of the aneurismal sac, he ligates the injured part of the vessels inside the sac. This is a very simple and rapid operation; the loss of ramifying vessels is reduced to the minimum; local anesthesia generally is sufficient for the purpose, and the loss of tissue and consequent obstruction of circulation is much less than by the ordinary technic. He first applies a tourniquet to the limb; then the aneurism is amply incised, the clots removed and the sac wiped clean. The bullet hole is found where the vessel meets an imaginary line drawn through the entering and exit holes. In case of doubt a bougie may be passed through it. The vessel is then detached and tied close to the hole, and the small part containing the hole is excised. The tourniquet is then removed, and, if no blood oozes, an iodoform sponge is inserted. The muscles and skin are then sutured in tiers and a bandage applied.

Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

A MANUAL OF MIDWIFERY FOR STUDENTS AND PRACTITIONERS. By H. Jellett, B.A., M.D., F.R.C.P.I., L.M., with the assistance in special subjects of W. R. Dawson, M.D., F.R.C.P.I., Medical Superintendent Farnham House, Dublin; H. C. Drury, M.D., F.R.C.P.I., Physician to Sir Patrick Dun's Hospital, Dublin; T. G. Moorhead, M.D., Physician to the Royal City of Dublin Hospital, Dublin; R. J. Rowlette, M.D., Pathologist to the Rotunda Hospital and to Dr. Stevens' Hospital, Dublin. With 476 Illustrations. Cloth. Pp. 1158. Price, $5.50. New York: William Wood & Co.

HEALTH AND DISEASE IN RELATION TO MARRIAGE AND THE MARRIED STATE. A Manual Contributed to Privatdocent Dr. med. G. Abelsdorff, Privatdocent Dr. med. L. Blumreich and Others. Edited by Geh. Medizinalrat Prof. Dr. H. Senator and Dr. med. S. Kaminer. Only Authorized Translation from the German into the English Language, by J. Dulberg, M.D., Manchester, England. Vol. I-II. Cloth. Pp. 498 and 1257. Price, $8.00. New York: Rebman & Co.

MALARIAL INFLUENZA AND DENGUE. By J. Mannaberg and Dr. O. Leichtenstern. Edited with Additions by Major R. Ross, F.R.C.S., J. W. W. Stephens, M.D., D.P.H., and A. S. Grunbaum, M.D., F.R.C.P. Authorized Translation from the German, Under the Editorial Supervision of A. Stengel, M.D. Cloth. Pp. 769. Price, $5.00 net. Philadelphia: W. B. Saunders & Co. 1905.

THE DIAGNOSIS OF DISEASES OF WOMEN. A Treatise for Students and Practitioners. By P. Findley, B.S., M.D. Second Edition. Revised and Enlarged. Illustrated; 222 Engravings in the Text and 69 Plates in Colors and Monchrome. Cloth. Pp. 588. Price, $4.75. Philadelphia: Lea Brothers & Co. 1905.

PROGRESSIVE MEDICINE. A Quarterly Digest of Advance Discoveries and Improvements in the Medical and Surgical Sciences. Edited by H. A. Hare, assisted by H. R. M. Landis, Vol. ii, June, 1905. Paper. Pp. 346. Quarterly. Price, $6.00 a year. Philadelphia: Lea Brothers & Co. 1905.

A PRACTICAL TREATISE ON FRACTURES AND DISLOCATIONS. By L. A. Stimson, B.A., M.D., LL.D. Fourth Edition. Revised and Enlarged. With 331 Illustrations and 46 Plates in Monotint. Cloth. Pp. 844. Price, $5.00 net. Philadelphia: Lea Brothers & Co. 1905.

SELECT METHODS IN FOOD ANALYSIS. By Henry Leffmann, A.M., M.D., Ph.D, and William Beam, A.M., M.D., F.I.C. With 55 Illustrations. Second Edition. Revised and Enlarged. Cloth. Pp. 396. Price, $2.50 net. Philadelphia: P. Blakiston's Son & Co. 1905.

SAUNDER'S POCKET MEDICAL FORMULARY, with an Appendix, etc. By W. M. Powell, M.D. Seventh Edition. Revised and Enlarged. In Flexible Morocco, with Side Index, Wallet and Flap. Pp. 301. Price, $1.75 net. Philadelphia: W. B. Saunders & Co. 1905.

ATLAS AND TEXT-BOOK OF TOPOGRAPHIC AND APPLIED ANATOMY. By O. Schultze. Edited with Additions by G. D. Stewart, M.D. With 125 Illustrations, 85 in Colors. Cloth. Pp. 189. Price, $5.50 net. Philadelphia: W. B. Saunders & Co. 1905.

TEXT-BOOK ON THE PRACTICE OF GYNECOLOGY for Practitioners and Students. By W. E. Ashton, M.D., LL.D. With 1046 Illustrations. By J. V. Alteneder. Cloth. Pp. 1079. Price, $6.50 net. Philadelphia: W. B. Saunders & Co. 1905.

TRANSACTIONS OF THE AMERICAN PEDIATRIC SOCIETY, Sixteenth Session, Held at Detroit, Mich., May 30-June 1, 1904. Edited by L. E. La Fetra, M.D. Volume XVI. Cloth. Pp. 296. Reprinted from Archives of Pediatrics. 1904-1905.

TRANSACTIONS OF THE ARIZONA MEDICAL ASSOCIATION. Tenth, Eleventh and Twelfth Annual Sessions, held at Tucson, Phoenix and Tucson, 1902, 1903 and 1904. Paper. Pp. 92. Phoenix: The Arizona Republican.

PARALYSIS AND OTHER DISEASES OF THE NERVOUS SYSTEM, in Childhood and Early Life. By James Taylor, M.A., M.D., F.R.C.P. Cloth. Pp. 512. Price, $4.00 net. Philadelphia: P. Blakiston's Son & Co. 1905.

TREATISE ON ORTHOPEDIC SURGERY. By E. H. Bradford, M.D., and R. W. Lovett, M.D., Third Edition. 592 Engravings. Cloth. Pp 669. Price $5.00 net. New York: Wm. Wood & Co.

ADDRESSES AND OTHER PAPERS. By W. W. Keen, M.D., LL.D., F.R.C.S. Illustrated. Cloth. Pp. 441. Price, $3.75 net. Philadelphia: W. B. Saunders & Co. 1905.

TRANSACTIONS OF THE ROCKY MOUNTAIN INTERSTATE MEDICAL ASSOCIATION, Denver, Colo., Sept. 6-7, 1904. Cloth. Pp. 216.